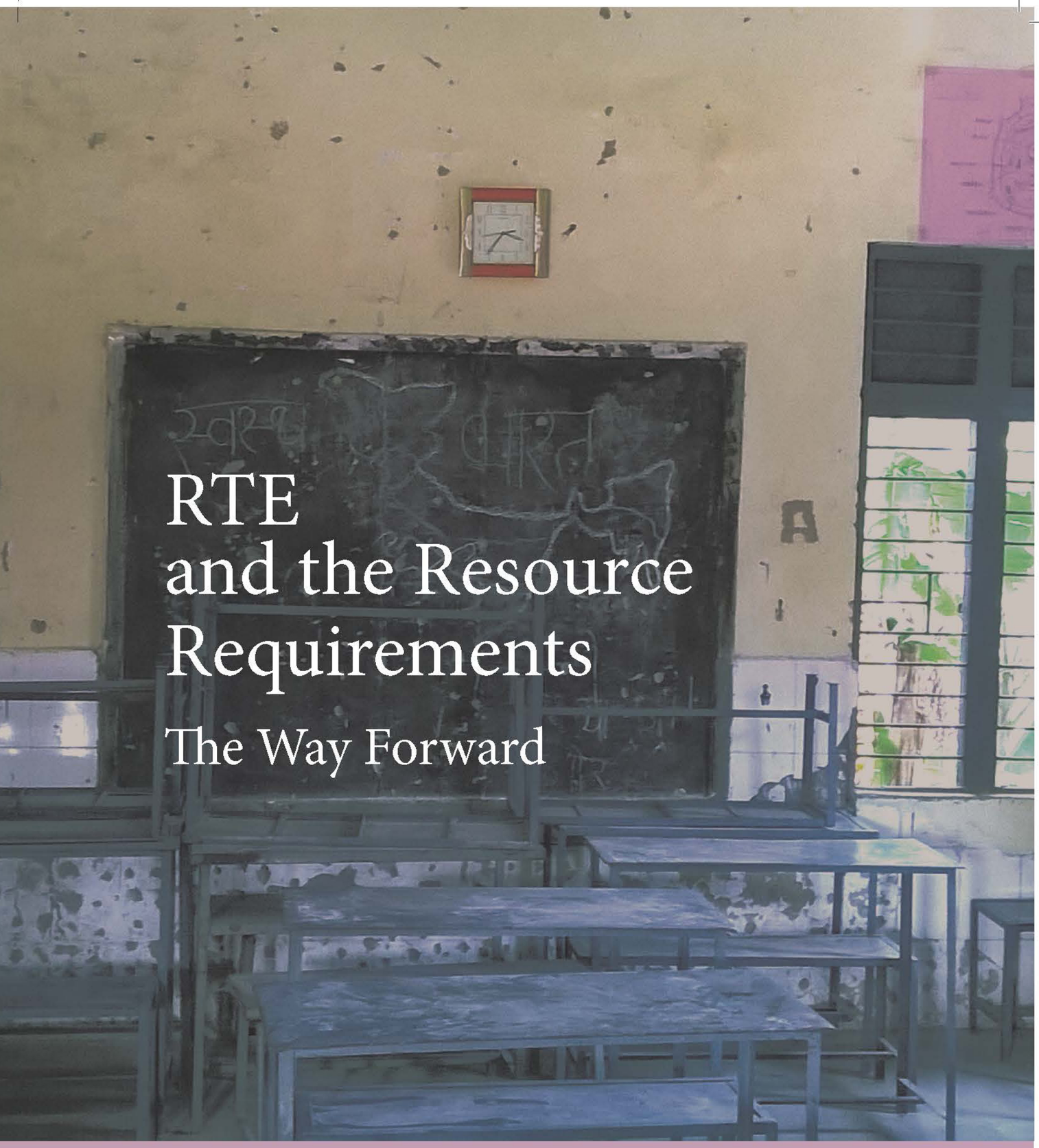

RTE and the Resource Requirements

The Way Forward

Sukanya Bose
Priyanta Ghosh
Arvind Sardana
With a foreword by Prof. JBG Tilak

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Foreword

As the Constitutional Directive of universalisation of elementary education was not fulfilled even after several decades after the date set by the Constitution in 1950, after considerable thinking, the right to education was made a fundamental right with an amendment to the Constitution of India in 2002, and again after considerable debates and discussions, the Right to Education Act (RTE) was finally made in 2009 as a necessary measure towards implementation of the amendment. The RTE promises public provision of good and equitable quality education to all children in the age group of 6-14, as a basic right. But even after a decade after the Act was made, even though many initiatives have been taken, the task is not complete and the progress has not been very satisfactory. Inter alia, an important reason for this is inadequacy of public funds allocated to elementary education. The RTE requires the union government to prepare a detailed estimate of capital and recurring expenditure requirements to fully implement it. Even before the Act was made, the requirement of resources to make education a fundamental right within a ten-year period, was estimated in 1999, in detail by an expert group chaired by Professor Tapas Majumdar. The expert committee considered the needs for expansion, improvement in quality, and ensuring equity in education; it considered several items in detail and adopted a norm-based approach in making the estimates. Based on a detailed estimation of costs of each item/programme, the group of experts has estimated that universalisation of elementary education would require additionally Rs 136.8 thousand crore in 1996-97 prices during the next 10 years. While this figure was found to be awesome, certainly being much higher than the Rs 40,000 crore for a five-year period, estimated by the Saikia Committee a few months earlier, it needs no special skills to understand that additionally it meant only Rs 14,000 crore a year on average, or additionally 0.7 percent of GDP (if the GDP were to grow at a modest rate of growth of 5 percent per annum). This should have been easily possible. The expert group also felt that if the government was serious about fulfilling the long-cherished promise made in the National Policy on Education 1968 of allocating six percent of national income to education, the task would become easier: six percent of national income would not only provide the needed resources for effective implementation of RTE towards universalisation of elementary education, but it would also allow provision of additional resources needed for growth of secondary and higher education. Further, the group showed that increasing of total allocation to education to reach 6 percent of gross domestic product (GDP) would not at all be difficult, given (a) the economy was forecasted to grow at a rate of growth of above 5 percent, (b) the anticipated likely increase of tax/GDP ratio from 16 percent to 18 percent, and (c) the expected likely increase of the non-tax revenue/GDP ratio to about five percent during the next 10 years. The group also had attempted to clear the absurd proposition which was in circulation that we cannot have universalisation of elementary education, because it would be too costly. In short, the

Majumdar Committee has clearly shown that good quality, equitable and efficient public education is financially affordable in India, and that allocation of the required resources is feasible, provided there is political will. Finding resources to finance the fundamental right was an urgent task as well as, contrary to popular fears, was an entirely achievable task. Yet we adopted an approach all these years, far from satisfactorily funding education. Though the Majumdar Committee had estimated the requirements as Rs 1,37,000 crore for a 10-year period, the financial memorandum attached to the 86th amendment provided for only Rs 98,000 crore; and even that amount was not found to have been allocated. The actual allocations do not seem to be matching the requirements at any point of time. Basically, financial planning in education sector in general and RTE in particular, has been long neglected, though the Majumdar Committee provided year-wise estimates of resource requirements for the ten-year period. Instead, resources are allocated to education adopting an incremental budgeting approach. While the Majumdar committee felt that, given the fiscal situation of many state governments, it would be desirable for the union government to share the total additional responsibly of financing free and compulsory education until the goal was achieved, we evolved a pattern of sharing of funding responsibilities between the union and the states, as provided in the Sarva Shiksha Abhiyan, making economically resource poor states to lag farther far behind others in reaching the goal.

Given the importance of elementary education for national development, the need to fund it on a sound and sustainable basis is being increasingly realised by all, and in this context, the need to reexamine the resource requirements is also often emphasised. The significant changes that took place in political and economic spheres, including changing fiscal arrangements between the union government and the states also necessitate a set of fresh estimates, as the twenty-year old estimates of Majumdar Committee and a few other estimates made subsequently about a decade ago, might no more be relevant.

The National Institute of Public Finance and Fiscal Policy, New Delhi, a leading think-tank on public policy issues relating particularly to finances, in collaboration with Ekalavya Foundation and with funding support from Azim Premji University, Bengaluru, has taken up this task on its shoulders and made a fresh exercise of making detailed estimates on resource requirements to fulfil the incomplete task of accomplishing the right to education. While doing so, it built on Majumdar committee's and others' efforts in estimating resource requirements for elementary education. Based on the provisions promised in the RTE Act, and using a set of reasonable norms relating to many components in education including physical infrastructure and human resources, and desirable decent salary levels of teachers, the present study gives us a set of 'normative' estimates of resource requirements of elementary education. In all, it estimated that the additional requirement is about 1- 1.14 percent of GDP. It also gave us what can be a desirable level of per student expenditure. A committee constituted by the government of India in recent years on improving government schools, has suggested, inter alia, taking schools like Kendriya Vidyalayas or Navodaya schools as a benchmark for every school in the country. As reported in the present study, we are spending Rs 32,700 per student (on recurring expenditure) on Kendriya Vidyalayas. This would be a desirable figure to be considered for allocation of adequate resources for quality school education in the country. The researchers of the present study, however, come with a modest estimate of Rs 23,200. Second, the team of researchers of the present study recognizes varying levels

of development, including state-wise deficits in public provision of education in terms of teachers, infrastructure and others, and varying fiscal capacities of different states, and gives us state-wise financial estimates in detail. Third, it underlines the point that a big push by the union government is essential specifically in case of those 16 states where the requirement of additional resources is high – exceeding one percent of gross state domestic product. This may have to be done through the Finance Commission. Fourth, it provides a roadmap by presenting year-wise resource requirements for a five-year period, until 2019-20, though a ten or fifteen-year plan would have been more useful. Finally, reiterating some of the messages given by the Majumdar committee, the present study also shows that the required financial allocation can be easily made within the limits of 6 percent of GDP, contrary to the argument being made by some scholars. The study emphasizes the importance of prioritizing education in the broad national policy context, preparation of a detailed financial road map in education and a one-time big push in funding elementary education. The last one has important implications for the recommendations of the current Finance Commission.

The study is a timely one, providing valuable inputs not only for fifteenth Finance Commission, but also valuable inputs into the discourse on education policy issues taking place in the context of the new National Policy on Education 2019.

Authored by a team of economists at the NIPFP, I am sure, the study will be of interest to academics, policy makers, planners, advocacy groups, students and researchers.

Jandhyala B G Tilak

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Acronyms

ASER	Annual Status of Education Report
AWP&B	Annual Work Plan and Budget
BRC	Block Resource Center
CABE	Central Advisory Board on Education
CAG	Comptroller and Auditor General
CAGR	Cumulative Annual Growth Rate
CBGA	Centre for Budget and Governance Accountability
CCE	Continuous and Comprehensive Evaluations
CPC	Central Pay Commission
CRC	Cluster Resource Center
CSS	Centrally Sponsored Scheme
CWSN	Children with Special Needs
DA	Dearness Allowance
DIET	District Institute of Education & Training
DISE	District Information System for Education
DoSW	Department for Welfare of SCs, STs and OBCs
EE	Elementary Education
FC	Finance Commission
GDP	Gross Domestic Product
GNP	Gross National Product
GoI	Government of India
GS	Government Schools
GS&A	Government including Private Aided Schools
GSDP	Gross State Domestic Product
HT	Head Teacher
KGBV	Kasturba Gandhi Balika Vidyalaya
KV	Kendriya Vidyalaya
LFPS	Low Fee Private School
MDG	Millennium Development Goals
MDM	Mid-Day-Meal
MHRD	Ministry of Human Resource Development
NCERT	National Council of Educational Research and Training
NCPCR	National Commission for Protection of Child Rights
NFHS	National Family Health Survey
NITI	National Institution for Transforming India
NSS	National Sample Survey

NUEPA	National University of Educational Planning and Administration
O&M	Operation and Maintenance
OSC	Out of School Children
PAB	Project Approval Board
PC	Pay Commission
PRI	Panchayati Raj Institution
PROBE	Public Report on Basic Education
PS	Primary School
PSRC	Per Student Required recurrent Cost
PTR	Pupil Teacher Ratio
REMS	Research, Evaluation, Monitoring and Supervision
RPTR	Required Pupil Teacher Ratio
RTE	Right to Education
SCERT	State Council of Educational Research and Training
SCS	Special Category States
SMC	School Management Committees
SPO	State Project Office
SSA	Sarva Shiksha Abhiyan
TA	Transport Allowance
TMC	Tapas Majumdar Committee
UDISE	Unified District Education System for Education
UEE	Universalisation of Elementary Education
UPS	Upper Primary School
UT	Union Territory

1
Introduction

In 2015, India adopted the Incheon Declaration for Education 2030.

"We reaffirm that education is a public good, a fundamental human right and a basis for guaranteeing the realization of other rights. It is essential for peace, tolerance, human fulfilment and sustainable development. We recognize education as key to achieving full employment and poverty eradication….It is also clear that the aspirations encompassed in the proposed SDG 4 cannot be realized without a significant and well-targeted increase in financing, particularly in those countries furthest from achieving quality education for all at all levels. We therefore are determined to increase public spending on education in accordance with country context, and urge adherence to the international and regional benchmarks of allocating efficiently at least 4–6 percent of Gross Domestic Product and/or at least 15–20 percent of total public expenditure to education."

UNESCO, 2015 (p. 7, 67)

1.1 Continuity and Change

India's record on elementary education has been anything but encouraging. Writing in the mid-1990s, Dreze and Sen note that India has clearly done worse than even the average of the poorest countries in the world in the field of elementary education. The rate of adult literacy for India was only about 50 percent, which is low compared to not only China's 78 percent, but also the average figure of 55 percent for all low-income economies, excluding China as well as India (Dreze and Sen, 1995; p. 2-3). As per the National Family Health Survey (1992-93) only 59 percent girls in the age group 6-14 were attending school, and in states like Bihar the figure was 38 percent. Stark social disparity was manifest in lower enrolment rates, completion rates and learning levels for marginalized groups. Reports during the 1970s and 1980s, point to an all-round shortage of schooling infrastructure across all levels, with the deficit more acute in the rural areas and remote places (GoI, 1992). It pushed many potential students out of the system. Number of students per teacher was irrationally high.

Since the mid-1990s, the educational context changed in several ways. With the expansion in public schools, the Gross Enrolment Ratio for elementary education improved significantly across different social groups, particularly for the marginalised sections. This is one of the most significant developments in the last two or more decades. Field surveys confirmed substantial increase in participation rates in elementary education. Stark social disparities in school enrolment disappeared at the primary level. Enrolment rates among Scheduled Caste children (94 percent) and Muslim children (95 percent) were as high as the sample average for all children (95 percent). Enrolment among

Scheduled Tribe children was somewhat lower at 89 percent (PROBE Revisited Survey, 2006).

The stress on the public school system, however, continued in different forms. A decline in the quality of teacher education, and the increasing informalisation of the school system with the indiscriminate increase of an underqualified cadre of para-teachers characterise the post-1995 phase (Batra, 2017). The shift of schoolgoing children away from public to private schools in search of elusive quality and the proliferation of a sub-standard and largely unregulated private school sector gained unprecedented momentum. What emerged is an extremely differentiated and hierarchical educational landscape, with different classes of educational facilities for various classes of "consumers", in this case schoolgoing children. The objective of universalisation of elementary education of an equitable quality for all children almost seems impossible today.

Budgetary allocations for public education continue to present a binding constraint for educational development. It has influenced the discourse and design of education policy through low-cost options and under-funding of educational programmes. "Rapid expansion, which was not accompanied by sufficient investment of resources, has caused a deterioration in academic standards (GoI, 1992)." With a few exceptions of states that have traditionally had a progressive approach to education, path-dependency is observed in low priority to education sector in budgetary allocations. For India as a whole, the share of public education expenditure in GDP was around 4 percent in 1990; it has remained below 4 percent for most part of the post-liberalisation years. Total expenditure on education (Center and states) as a proportion of total budget of all sectors has fluctuated between 10-12 percent over the years. The well-known benchmarks of public education expenditures, which the Incheon declaration reiterates continue to be paper targets, with no real muscle.

1.2 Need to Reclaim Education as a Public Good: State versus Market

Mahbub ul Haque, founder of UNDP's Human Development Report, had famously said, "The real wealth of a nation is its people. And the purpose of development is to create an enabling environment for people to enjoy long, healthy, and creative lives". Haque and Amartya Sen proposed the human development approach as an alternative to GDP-focussed view of development. Being educated is described by Sen (1992) as a basic capability, i.e. part of centrally important beings and doings that are crucial to well-being. Education is valuable to the freedom of a person not just in the instrumental personal role of increased earnings. Being educated is a valuable achievement in itself, in addition to being instrumental in fulfilling other essential freedoms. Education can facilitate public discussion of social needs and encourage informed social demands. Greater educational achievements of disadvantaged groups can increase their ability to resist oppression and organize politically.

It follows that education is both private and public good. It provides benefits to both the individual and the larger society. As Kumar notes providing education is thus complex and requires different systems working together to understand, plan and fulfil these expectations. "It is these systems that which must take cognisance of the aims of education, recognise the economic and social needs of the country, and implement curricula, examination and teacher training which provide this (Kumar, 2010, p. 43)."

The State must discharge its responsibility as guarantor and regulator of education as a fundamental human entitlement and to enhance the public good. Market provision would be directly related to individual purchasing power and therefore be inequitable and inadequate to the task. Publicly funded and managed common schools for all children is the natural way to go. In most of the OECD countries only about

10 percent of students attend private primary schools, a section of whom are dependent on state support.[1] There is no historical evidence that there is any other way to ensuring decent quality access for all, apart from the strong public provisioning (Jha and Parvati, 2017).

Proponents of market choice advocate a market-based school system. Friedman (1955) proposed a system of parental choice that he argued would bring the virtues of free market into the public school system. By providing families with vouchers to cover expenses at their choice of a private school, the State could generate competition between schools that would increase and improve the schools available to families. The individual benefit is maximised, and simultaneously the public system improves.

The pitfall in Friedman's hypothesis was pointed out by Hirschman (1970), who argued that the market mechanism and competition would actually weaken the quality of public schools. Hirschman's argument does not overtly hinge on equity, but focuses on the functioning of the institution. With the better-off families "voting with their feet" and opting for private education, much less parental pressure is left for improvement of the government schools. It weakens the 'voice' of those who are left within the public schooling system and only makes the system less responsive. "Voice is here defined as any attempt at all to change rather than to escape from an objectionable state of affairs, whether through individual or collective petition to the management directly in charge, through appeal to a higher authority with the intention of forcing a change in management, or through various types of actions and protests, including those that are meant to mobilize public opinion (p. 30)." Challenging Milton Friedman's (1955) espousal of school voucher system, Hirschman suggested how a tight monopoly (in these and other connoisseur goods) could be preferable to prevent parents from moving out of government schools, and thereby preserve the voice. The public schools thus need to be protected from competition, along with the use of 'voice' as a method for recuperation.[2]

There are other issues with market-based systems. Parental choice may be sub-optimal and cannot be relied upon to guide the system in the right direction. The efficient market hypothesis presumes competitive markets with perfect information and rationality of agents. On the other hand, the educational market place is characterized by asymmetric information (Stiglitz, 2000) and parents make decisions on school choice based on imperfect information. School choice is influenced by aspirational perception together with strong influences from community, religious and caste considerations, etc. The summation of individual choices cannot be relied upon to ensure the progress of mankind and enhancement of the public good (Alexander, 2012). In fact, there is a real risk for education to become narrow, catering to needs of the market versus liberal social education as it retreats from the public sphere.[3]

Several compelling reasons for public education notwithstanding, the Indian State has allowed and promoted private sector expansion in education, initially as complements but increasingly as substitutes to public schools.[4] Between 1995 and 2015, NSSO estimates (all India) show a 16 percent

1. Even in the US, public schools serve 88 percent of the nation's elementary and secondary students, while private schools serve 12 percent. These relative shares have stayed roughly the same for a few decades and are projected to remain the same for the next several years (Kober, 2007).
2. Hirschman's sentiment finds echo in the recent judgment by the Allahabad High Court. In 2015, the Court passed an order directing that all the government servants, elected representatives, members of judiciary and every other person who receives any salary, benefit or perks from the state exchequer or public fund has to send their children to primary schools run by the Uttar Pradesh state education board (Refer to Justice Sudhir Aggarwal's judgement http://onelawstreet.com/wp-content/uploads/2015/08/allhc-school-govt2015.pdf)
3. Saragapani and Winch (2010) elaborate the public good nature of education
4. School closure and consolidations are symptoms of the shift.

shift in children attending to private unaided schools, schools that are neither funded nor managed by the government. There are many states, where the shift to this sector is as high as 20-35 percent. This is in marked contrast to the experience of OECD countries mentioned above. The proliferation of private education has benefited commercial interests and families with privileged backgrounds. But for a large section of the people, the movement to private schools has been a choice in distress. Economic costs of reasonable private options are unaffordable for most.

The unregulated private sector provision of education, such as the low fee private schools, has seen a growing market with the State turning a blind eye to their expansion. It is "reform by retreat" as Majumdar (2017) terms it. Low fee private sector has emerged as a close substitute to government schools. While the diminishing quality of government schools and the half-hearted response in the public system are the main causes for shift to private schools (in majority cases), the phenomenon of exit has further weakened the voice and therefore a push for reform and improvement in the government system, just like Hirschman had predicted. The public school system is increasingly viewed as residual, meant for those who have no choice (the trapped) (De, et al, 2002). The social costs are huge. The non-functioning of public schools is not gender-neutral/ caste-neutral/ class-neutral. Neglect of the government school affects the girl child much more than the male child. It affects the lower castes and classes much more than the upper castes and classes.

The big challenge for the Indian education system is then how to reaffirm the 'public good' nature of education and strengthen government schools. This is necessary such that education of an equitable quality is available to all irrespective of their socio-economic backgrounds, instead of segregated structures. Segregation affects the entire society deeply, from which no one can escape. While the global and local forces espouse privatization in many forms, and argue that there is no alternative, it is important to recall the alternative models available. There are nations that have taken a different path to uphold the principle of equality with quality. The Finnish education system – with its emphasis on high-quality teacher education, common schools with similar standards for all children, trust in the public school system even by the elite who have considered these schools "good enough" and a strict ban on private role in pedagogic services – is a case in point (Simola, et al, 2017). The common school system has not prevented the Finnish peruskoulu (schools) from being one of the top educational performers in the world. Similarly, there are attempts by a few Indian states that may be worth watching. This is not a call for imitation but an assertion of what is possible. Each context would have to finally evolve its own unique model, overcoming the constraints that make delivery by the State so weak today.

1.3 Right to Education as an Opportunity

The Right to Education, wherein every child can avail of an education of a certain quality as a legally backed entitlement has come only recently in India. In 1911, Gopal Krishna Gokhale had moved the Free and Compulsory Education Bill in the Imperial legislative Assembly. It faced stiff resistance from members representing privileged classes. Since then it has taken a full hundred years for the RTE Act to be born.

The Directive Principles of the Constitution (Article 45, provision for free and compulsory education for children) had urged the states to provide, within a period of ten years from the commencement of the Constitution, free and compulsory education for all children until they complete the age of 14 years. The Report of the Education Commission (GoI, 1966) had formulated a vision of educational development with a well-defined path for educational policy and financing. It suggested the common-school system with neighbourhood schools and equitable quality across all types of schools. The resource need for such an enterprise was

carefully laid down (to be discussed further in Chapter 2). However, policies that were taken for implementation fell far short of what was required. There were huge gaps between high-sounding policy statements and actual working of the policy or the public resources devoted to this sector. Resource allocation to the sector remained poor.[5] Barring a few states such as Kerala, Tamil Nadu and Himachal Pradesh, the states did not prioritize school education. While education was brought under Concurrent List in 1976 – where both the Central government and the state government share the responsibilities for the development and financing of the sector – the Center's contribution remained marginal for a long time. Elementary education was not a national priority. The problem of inadequate aggregate resources was compounded by severe imbalances in allocation. There were large inter-state variation in per capita expenditure on education. States with lower educational attainment, where the need for financial resources is higher, had low fiscal capacity.

The National Policy on Education (GoI, 1986) followed by the Programme of Action (GoI, 1992) provided some impetus to the sector in the 1990s. The decade also saw opening up of the primary education sector to external assistance on a fairly large scale. Several Centrally sponsored schemes were launched in a framework of partnership between the Centre and the states. The literacy scene got galvanized with countrywide literacy campaigns. PROBE (1999) notes a high demand for schooling countrywide, including the most backward states. The typical father or mother is very keen that their children receive good education, unlike the commonly held belief that the parents are not interested.

The big impetus for Elementary Education as a fundamental right came with the Supreme Court judgment that held children under the age of 14 have the fundamental right to free education (J.P. Unnikrishnan v. the State of Andhra Pradesh, 1993). The Supreme Court in interpreting the Constitutional provisions declared basic education as a fundamental right of every citizen requiring the State to make necessary provisions. It took another 16 years for Parliament to enact the Right of Children to Free and Compulsory Education Act, 2009 (GoI, 2009).

RTE is an attempt to widen the scope of education and improve its quality. It provides the essential legal framework to fix responsibility when children are denied the right to education. RTE also provides "a social vision on education and the policy agenda to achieve the social vision" as Prof. Krishna Kumar elaborates (Kumar, 2018). In setting out that policy agenda it presents a critique of the present system – school and society. RTE by insisting on eight years of compulsory schooling recognizes the importance of the elementary stage with continuity of curriculum rather than a separate primary and upper primary stage. A large segment of children especially in the age-group 11-14 years, drop out of the school system and join the workforce at a tender age. A significant proportion of girls do not continue beyond primary as they have to take on household duties. RTE attempts to block the avenues for child labour. RTE also bans corporal punishment, and the practice of failing children. Corporal punishment and failing are old cultural practices that are used to generate fear and thereby regiment children. By introducing clauses banning these practices, RTE acknowledges the presence of these hurtful practices and that the way to move forward requires a different approach. Similarly, it acknowledges the social reality of discrimination of marginalised and oppressed groups and its extension to schools, and that the child's right to an equal treatment needs protection.

What kind of learning is expected has been defined in the RTE Act. It has to be in conformity with the Constitutional values and aim at all-round development of the child,

5. In year 2012, India's rank was 122nd among 158 countries for which data is available, in terms of the proportion of public expenditure on education to GNP (World Bank, 2013).

including mental and physical abilities. Learning should happen through activities, discovery and exploration in a child-friendly and child-centered manner. It emphasizes that the learning environment is to be free of fear, trauma and anxiety and help the child to express views freely. An important component of learning would involve comprehensive and continuous evaluation of child's understanding of knowledge and his/her ability to apply the same.

In terms of the design of the school, the RTE Act makes the requirements explicit by setting clear norms and standards for a school. The structure of buildings, classrooms and other infrastructure is specified. The required number and variety of teachers for each level is specified. The minimum pupil-teacher ratio, along with the number of working days and working hours is to ensure that every child gets the attention she deserves. Each school must be endowed with teaching-learning equipment, library facility, play material, games and sports equipment – all of which is far from the existing status in government schools. These norms apply equally to public schools and private schools, with only a few exceptions.

1.4 Financial Roadmap for RTE

Entitlements require an unequivocal commitment of financial resources. To what extent and how adequately a system responds depends crucially, inter alia, on the investment of financial resources, that is, the public expenditure on elementary education.

RTE Act does not suggest a specific financial path.[6] There are a few important clauses on processes to be followed by the governments to define that path. The Act lays down, among the duties of the Central Government, "to prepare the estimates of capital and recurring expenditure for the implementation of the Act (Section 7)" This is necessary such that a plan can be drawn up mapping the requirement of finances, and a sharing pattern worked out between the Center and states. Based on the estimates of requirement, the Act says, the Central government shall provide to the state government, a percentage of expenditure as it may determine in consultation with the state government. The latter is an acknowledgement of the needs of the states for substantial Central funding to uphold the Right to Education. While states must decide the priorities in actual planning and implementation, the Central steer and Central funding are both crucial.

Attention to financial resource requirement is important for a number of reasons. As noted before, historically there have been any number of progressive policy documents but the actual policies to achieve the objectives have lagged behind, and low resource allocation for public investment in social sectors shares a large part of the blame. To the extent RTE is an ambitious and futuristic move that guarantees every child, including the underclass, a right to education that is worthy of being called so and not a dysfunctional system, it is expected that the financial needs will be substantial. A clear estimation of resource requirement and a financial roadmap based on the normative would ensure that the governments commit the required resources, and RTE implementation is not throttled due to resource constraints. In the absence of a financial roadmap, it is highly likely that the practice of incremental budgeting (budgets are made as increments to the past year's budget) would decide the course of allocations.

In contrast, norm-based financing, provided the norms are reasonable, can provide a fair financial roadmap. It reduces the ad hocism and discretionary element in funding. Sinha

6. The absence of a financial roadmap with the RTE Act has attracted criticism. Sadgopal (2010) notes, "there is no financial memorandum attached to the Act means that there will be no way to compel the government to provide adequate funds i.e., financial implications of the Act are not enforceable/ justiciable. The government will continue to have the arbitrary powers to make budgets and dilute or postpone allocations as per its convenience, just as it has been doing for the past 60 years" (p. 44).

(2013) agrees that norm-based funding in the development sector with a thrust on need-based decentralized planning at the state and district levels as the basis for approval and appraisal seems to be the best way of moving forward. Financial norms are to be decided component-wise and in a transparent manner. The Expert Group Report on Financial Requirements for Making Elementary Education a Fundamental Right (GOI, 1999) popularly known as Tapas Majumdar Committee (TMC) had used this method. Costing by activity components was to "contribute to greater transparency and internal efficiency". It was to "enable activity-wise audit" and "facilitate a process of feedback" in resource allocation (p. 8).

While estimates of a normative resource requirement should translate into the financial roadmap or at least influence to a large extent the financial roadmap, the reality may fall short of it. In that case, a normative for resource requirement becomes a useful benchmark against which to evaluate the present status. The distance of the actual expenditure from the normative provides a measure of the gap to be bridged, which can be crucial for the resource planning exercise.

Finally, a framework of estimation of normative resource needs, disaggregated by components, would help evaluate the need for financial resources when the norm itself is bettered. Norm-based financing allows a critique of the norm itself and therefore pushes the boundaries of what might be considered desirable. In other words, the normative itself would need repeated revisiting.

1.5 Missing Financial Roadmap and its Logic: Locating this Research within the Present Policy Discourse

The last estimate of financial requirements for UEE goes back to 2009-10, around the time when the Act came into being. Despite a clear clause in the RTE Act on the responsibilities of the Central government to prepare financial estimates for the implementation of the provisions of the Act, there are no recent estimates of resource requirements. MHRD confirmed that there are no medium-term plan estimates beyond the 12th Plan period. CAG (2017) in its compliance audit report of implementation of the RTE takes note, "As per Section 7(2) of the Act, the Central government was to prepare estimates of capital and recurring expenditure for the implementation of the provisions of the Act. However, GoI has not provided any separate budget for implementation of the Act till date." (p. 7)

I. This neglect of the resource adequacy issue is a cause for concern. The official apathy is closely related to a certain conservative view where the public system is seen as weak and inefficient, and unable to deliver. In the context of Sarva Shiksha Abhiyan, the blame is placed on the lack of spending capacity by various state governments and other local institutions (the governance factor). Since the absorptive capacity is limited, it is perceived that the resource envelop does not matter. Many of the lagging states, where most of the deficit is concentrated, have shown a track record of underspending. In our understanding, this is not the right perspective. Underutilization of resources is an issue of implementation that cannot be conflated with the need for resources. This is similar to blaming the poor for their poverty. Rather, implementation must be an intrinsic part of the design of the plan as Chakravarty (1987) argues. A good plan not only derives paths to achieve the desired target but also sketches behavioral patterns that can lead the system to the set target. It is an exercise with a political economy perspective and not a cynical wishlist that is believed to be non-implementable. There can be a number of reasons for implementation failure, that are in no way related to the lack of demand, such as time lag in which planning authority responds, lack of motivation or capacity of the agencies through which planning authorities implement plans, poor understanding of the current structure of the system, deficient coordination between the actors involved, etc. Inability of State institutions to spend is not an indication that resources are not needed.

In fact, the gap between the state proposals and budget approved for Sarva Shiksha Abhiyan (SSA) and final allocations by the Government of India consistently show how demand far exceeds supply (Table 1.1). In the year 2012-13, the states had drawn up plans worth more than 1 lakh crores, of which the projects approved by the Project Approval Board (PAB) amounted to less than 70 percent. Further, the budget provision where the Finance Ministry has the final say, amounted to about 53 percent of the approved Central Share. Budget provision by GoI (last column) is a typical example of incremental budgeting. It betrays the resource constrained situation within which the states actually operate and the conflicting policy signals that the states have to deal with. In the context of steep cuts in the SSA budget, a senior bureaucrat of state education bureaucracy expressed her frustration: it doesn't seem like the Center is serious about the RTE.

II. The neglect of the resource adequacy question derives a great deal of its legitimacy from quality concerns. It is pointed out that quality, measured as learning outcomes, has suffered, despite higher expenditure on education. In its three-year action agenda, NITI (2017) states, "through initiatives like the Sarva Shiksha Abhiyan and the RTE Act, the Indian school system has focused on measuring and delivering inputs, and in this, it has largely succeeded…. The most important goal today is to improve learning outcomes." Even as the implementation of RTE is beginning to roll out, the mainstream narrative has shifted away from inputs to learning outcomes. In public financial management, which is the new framework for public expenditure governance, the latter is mirrored in the need for outcome budgets drawing a distinction between "outputs" of public spending (buildings, textbooks, teachers) and final "outcomes" (learning levels).

Admittedly, there's been significant progress since the early 2000s in fulfilling some of the basic requirements on schooling. This has happened on a much wider scale than any time in the India's history of educational development, both in terms of policies and finance. And yet, as we shall see in this report, the reality is checkered. There still exist very significant gaps in the essential entitlements which call for substantial public spending (see Chapter 3). The fact that the norms must hold at the level of the school renders the average story irrelevant. CAG (2017) underlines the multiple ways in which the provisions of the RTE Act are being violated.

Table 1.1 Proposal received from the states vis-à-vis approval & GoI budget provisions for SSA (in Rs Crores)

Year	State proposal	Outlay approved by PAB	Centre share as per approved outlay	Budget provision in GoI
2010-11	-	44610	29610	19838
2011-12	81886	60348	40100	21000
2012-13	105245	68136	45421	23876
2013-14	96769	43810	25741	27258
2014-15	91482	51396	31947	28258
2015-16	91485	61037	38070	22000

Source: CAG, 2017

Over the years, scholars like Hanushek (1997) have argued that expenditure and resource differences across schools are poor measures of quality. According to Hanushek, studies of student achievement demonstrate that there is no strong or consistent relationship between student performance and school resources, at least after variations in family inputs are taken into account. A number of studies in the Indian context have explored the relationship between the various inputs and learning outcomes and arrived at similar understanding. In a review of the literature, Muralidharan (2013) notes that none of the studies to date finds a significant positive relationship between teacher training and increases in test scores of students taught by the corresponding teacher. Similarly, there is no correlation between teacher salary and student test score gains, and if anything the correlations

typically point to a negative relationship between teacher salaries and gains in student test scores (Kingdon and Teal, 2010; Muralidharan and Sundararaman, 2011). Drawing legitimacy from the weak/negative relationship in empirical studies, there has been a concerted attempt to run down the necessity of inputs into schooling. Instead, the lack of accountability of teacher and teacher absenteeism are seen as the main problems that need to be tackled. A completely different strategy based on local contract teachers, performance linked pay, monitoring of teachers and "learning outcome" centered education has been proposed as a `cost effective' alternative to the input centric approach.

Many educationists disagree with the above reading. They emphasize that test scores cannot assess equity and quality of educational outcomes. There are major concerns about large-scale tests using traditional quantitative techniques which rank children, schools and even countries instead of empirical approaches focusing on the quality of student-teacher interactions. The standardized testing and curricula undermines the possibilities for learners to construct their own meanings and for education programs to remain responsive to individual learners' circumstances and needs. The focus on efficiency and accountability through such standardized tests promotes learning by rote and defensive "teaching to the tests".[7] It offers much less incentive for activity and creativity and causes greater marginalization of disadvantaged children who need more attention and are seen to deflate achievement scores (Rampal, 2017).

Without dismissing the importance of test scores, Majumdar (2017) suggests equality of educational attainment as a measure of quality for India. Reduction in inequality in the number of years of schooling attained (school life expectancy), particularly in rural areas and traditionally disadvantaged social groups could be an important objective of education for all. Of course, how well students are taught and how much they learn can have a crucial impact on how long they stay in school. Thus, school attainment can to some extent reflect the minimum learning requirement. But the former is much more important. UNESCO (2005) perceptively states, "Keeping them in school for eight years even if they achieve proficiency of the 6th grade level is considered an important quality imperative". Thus, the idea of outcome and its measurement has to be contextual.

A number of studies have highlighted the impact of school provisioning on first level outcomes. The inputs and incentives appear to have worked to increasing access in a very substantial way. Jhingran and Shankar (2009) show a high correlation between education input index and education output index. Input index is constructed from access, infrastructure and teachers and output index is constructed from enrolment and school completion. A number of studies have found that a reduction in PTR leads to higher retention rates/ completion rates (World Bank, 2004; UNICEF-NIPFP, 2016). Afridi (2010) studies the impact of mid-day meal provision and finds that the program substantially increases the total caloric intake of school-going children in rural Madhya Pradesh, by 50-100 percent. Attendance rates for girls are estimated to increase by 12 percentage points in rural Madhya Pradesh (Afridi, 2011) and 5 percentage points overall in Delhi (Afridi et al., 2010).

It is true that inputs such as classrooms, teachers and incentives of MDM, textbooks can bring children into schools but are not enough to ensure regular school functioning. But without

7. Glewwe, Ilias and Kremar (2003) study the effectiveness of teacher incentives on student test score in Kenyan schools. As an incentive, the teacher would receive monetary reward if students in his/her class do well in district exam. It was found that test scores do improve following the incentive but it does not increase the teachers' presence. Teachers in the treatment schools have responded by devoting more time on test preparation sessions instead of increasing the teaching time. Our own fieldwork in Economics classrooms in High Schools have noted the casualties in teaching-learning as a result of the pressure of Board examination (Bose, 2012).

these inputs what happens is a silent 'push out'. This is what was happening through much of the second half of the last century. Since public supply of school facilities was not increasing fast enough, a large number of children who could be at school were never enrolled or would drop out very early. RTE essentially gives expression to a consensus view on the minimum threshold level of infrastructure, PTR, head teachers, instructional days, etc. necessary for a functional public school system. It reiterates that educational allocation matters for universal elementary school attendance and completion. It doesn't say that it is all that matters.

It needs to be stressed that for proper school functioning and schooling experience of children, RTE lays down a range of inputs to be made available in a complementary and time-bound manner. In the absence of the complementary factors, individual inputs by itself would hardly contribute towards improvement in test scores or better learning outcomes. In addition, a host of other measures such as a strong regulatory oversight by different institutions, adequate management strength, lack of assignment of non-teaching duties to teachers, etc. need to be ensured. This requires fulfillment of roles assigned to various institutions backed by adequate funds and functionaries through the different tiers of the government.

That each individual input works within a system can be easily demonstrated in case of the teacher. Ramachandran et al (2009) describe how teachers' practice is influenced by the nature and amount of in-service training, the kind of supervision and support they receive and the encouragement/incentives the system offers. In addition, political interference plays a key role in determining teachers' behavior in India. Exploring the problem of teacher absenteeism, and experimenting with incentives, Banerjee and Duflo (2006) find that incentives to boost teacher presence in schools were not particularly successful. The authors argue that the reason for that in many cases are the poor working conditions of the teachers. Job descriptions of the teachers/health service providers often ask too much from them making it difficult for the providers to stay true to their responsibilities. Rationalization of the job description may be the first step toward getting better attendance. In its teacher absenteeism study, Azim Premji Foundation (2017) undertook a field survey of 619 schools in the disadvantaged regions across six states of India. The overall absence rate of teachers was 19 percent. It was found that the reason for being absent in most cases is authorized leave (9 percent). Official duties have been identified as the second most important reason for teacher absenteeism (7 percent). This includes academic duties, school administrative duties and other departmental work. About 2.5 teachers out of 100 teachers were absent without any reason. The study suggests that teacher absenteeism is more of a systemic issue and less of irresponsibility or neglect by teachers as is mostly conveyed.

The perspective that emerges is that quality is multidimensional and one needs to have a broader understanding of it. And the factors that drive quality are several; complementarity and intersection between these determine educational performance. As UNESCO (2005) emphasizes educational quality is determined by several interlinked processes. These processes govern teacher training, recruitment and deployment, curriculum and textbook provision, school infrastructure management, academic support to teachers and examination and assessment. Each of these takes place within institutions and systems involving professionals in areas including subject-knowledge, pedagogy, learning and assessment, and support structures such as finance, administration and recruitment.

III. While de facto official silence and self-doubt prevails on the issue of resource requirements for public schools, there have been arguments challenging the financial feasibility of UEE through public resources. Jain and Dholakia (2009) demonstrate that even an allocation of 6 percent of GDP to the education

budget will not be sufficient to fund universal school education if the reliance is wholly or even primarily on government school system. This is in sharp contrast to the estimates given by Tapas Majumdar Committee (GoI 1999). Jain and Dholakia go on to suggest that the only way to meet the RTE obligations is to rely on low-cost private schools with public funding (PPP model). Besides substantial cost savings, private schools offer better outcomes defined in terms of test scores.

A number of scholars have critiqued Jain and Dholakia's proposals on low-cost private schools. PPP based on low-fee private schools has been summarily rejected on the grounds of equity (Ramachandran, 2009). Sarangapani (2009) has questioned if the notion of "school" could be reduced to non-formal centers imparting numeracy and literacy skills through a few hours of engagement adjusted around child labour schedules. The politics of low-cost schooling in the neo-liberal ethos essentially targets the teacher. The teacher is seen as an easily available human resource, as one input whose purpose is defined with respect to quantifiable outputs, namely the learning achievements of students leading to greater workplace productivity (Jain and Saxena, 2010). Given the needs of the first-generation schoolgoers, there is an even greater need and urgency for increasing per child allocations (Ramachandran, 2009), and to appoint qualified teachers in government schools for reasons of equity, justice, rights and democratic citizenship (Jain and Saxena, 2010).

Further, the evidence on superiority of private schools even when measured as test scores is not undisputed. Whereas some have found that private schools are more accountable and responsive to parents and children have higher test scores (Tooley et al, 2011; Muralidharan and Kremer, 2008; Goyal and Pandey, 2009; French and Kingdon 2010), there are others who claim that the effectiveness of private schools is exaggerated. Private school benefit seems to fall drastically once characteristics other than the type of school are controlled for (Wadhwa, 2009). In a longitudinal randomized control trial study, Karopady (2014), obtains that there is no difference in the test scores between students who shifted to private schools in response to the school voucher program and their peers continuing in government schools, after controlling for the socio-economic background. The private schools are all low-fee private schools that the disadvantaged groups would afford with a school voucher and not the high-end private schools. Even after five years of exposure, the results show that differences in test scores are not significant.

Jain and Dholakia's quantitative estimates have not been challenged, despite a strong challenge to their policy perspective. Since there are no alternate estimates (official or independent), their work stands as a question mark on the feasibility of public expenditure for RTE.

1.6 Outline of the Report

The present study responds to the deliberate neglect of the resource question on elementary education through its attempt to construct normative estimates of resource requirement. By using the framework of RTE, an exercise to estimate the normative resource requirement for UEE is undertaken. It is worth repeating that a careful estimate of resource requirement with clear and transparent assumptions of the parameters is a necessary reference point. It would allow evaluation of the adequacy of current levels of expenditure compared to the normative requirement. Careful estimates of resource requirement and planning at various levels hold the key to successful implementation.

While estimation of resource requirements for RTE is the central objective, in doing so, we have engaged with important ideas, debates, policies and practices that define the present educational scenario in India. Finally, there are policy suggestions on the "how to" questions regarding universalisation of education of equitable quality and feasibility of public spending.

The rest of the Report is organized into four chapters. Chapter 2 begins with a review of the existing methods for estimation of resource requirements followed by a presentation of the conceptual framework, methodology, data and assumptions for estimation. Chapter 3 presents the results on physical, human resource and financial adequacy, and financial feasibility for each state. The estimates are thereafter aggregated to obtain the national-level estimates and projected forward for medium-term financial roadmap in Chapter 4. Scenario analysis captures important policy shocks and policy choices and their resource implications. Chapter 5 looks at the resource question in its entirety. It addresses how the inadequacies and inequities of the present situation can be addressed and what kind of institutional measures can bring it about. Recommendations for the inter-governmental framework for public expenditure on elementary education are embedded in the discussion. The chapter also presents our understanding on how resources may convert into outcomes. Conclusions are presented in Chapter 6.

2

The Methodology for Estimation

There are a number of studies – mostly reports of officially appointed committees – that have engaged with the resource requirement question in the past. Compared to the early literature, the later studies are sophisticated in terms of social vision, conceptual method and use of data. We shall also see that this literature has been able to speak to both educationists and economists integrating concerns of universalisation of education of equitable quality and feasibility of public spending. We will first review the existing literature from the conceptual and methodological perspective. The review is meant to provide pointers for a suitable framework for resource estimation. The next few sections present our framework and methodology, followed by assumptions and data for estimation.

2.1 Studies on Resource Estimation: A Summary

The issue of public resource for education and its normative dimensions were systematically studied in the Report of the Education Commission (GoI, 1966), also known as Kothari Commission. The Commission asked: "What should be the total level of financial support for education at all levels to ensure achievement of national goals and rapid advancement of national economy, cohesion and security?" For a time horizon of 20 years beginning in the mid-1960s, the magnitude of resources available for educational development was estimated. National income (at 1965-66 prices) was posited to grow by 6 percent per annum between 1965 and 1985. The increase in educational expenditure was to be at 10 percent per annum under the premise that in early stages of educational development, the rate of growth of educational expenditure ought to be approximately twice the rate of growth of national income. As a share of national income, the above would imply an increase from 2.9 percent in 1965-66 to 6 percent by 1985-86.

Once the available resources had been so determined, it had to be divided between the different stages of education. The available resources, allocations across stages and population growth together determined the per pupil expenditure at every stage. The per pupil expenditure so derived had to be consistent with the cost per pupil calculated from the expression "a(1+r)/t" where (a) is average salary per teacher; (t) is the pupil-teacher ratio (PTR); and (r) is the expenditure on all non-teacher costs expressed as a percentage of the average salary of a teacher. Higher the values of a and r, and smaller the PTR, higher would be the cost per pupil. For instance, despite the higher allocations per pupil, the Commission warned

that balancing various priorities would be a tightrope walk. In the primary classes, the PTR would have to be raised from 38 in 1965-66 to 50 in 1975-76 by the adoption of three-hour session system. "This is inescapable if a living wage is to be given to the primary teachers. If smaller classes are considered desirable, either additional funds will have to be found or the rate of expansion will have to be deliberately slowed down. The average class size would automatically decline as the birth rate of the population declines. The class size will result in 30-35 (p. 481)."

Was the design of 10 percent growth in real expenditures on education as suggested by the Education Commission too ambitious? It wasn't. The assumption of 10 percent annual growth in public spending on education was embedded in the experience of those times. In the years after Independence, 1951 to 1965, the end of the third Plan period was a period of relatively rapid expansion of educational expenditure. Total educational expenditure represented 1.2 percent of national income in 1951. It rose to 2.9 percent at the end of the third Plan, an increase of 142 percent in 15 years. The rise in educational expenditure was 1.6 times the rate of growth of enrolment. If one were to think of the overall resources available for education as a function of two variables: ability (the national income per capita) and effort (the proportion of national income allocated to education), effort had increased at more than twice the rate of ability.

The trajectory of educational investment did not turn out to be the same as envisaged by the Education Commission. Public expenditure on education hovered around 3-4 percent of Gross National Product (GNP). Universalisation was still far-off when the Saikia Committee (GoI, 1997), comprising of state education ministers submitted its report. Unlike the Kothari Commission, later studies began with the requirement question and then worked out the ways in which resources could be made available. The Saikia Committee applied the then existing per student government expenditure of Rs 948 to the estimated 63 million Out of School Children (OSC). The Committee also added a factor of 20 percent to the cost for improvement of quality and environment of school education to be provided. The Committee estimated an additional fund requirement of Rs 40,000 crores during the IXth Plan period (see Jha, et al, 2008 for a detailed discussion).

The Expert Group Report on Financial Requirements for Making Elementary Education a Fundamental Right (Tapas Majumdar Committee or TMC) came in 1999. This report was a trend-setter in estimation methodology with all subsequent reports adopting the TMC framework. It took into account the schooling inputs available in all states and calculated the additional requirements in case of each schooling input. Based on the unit costs of inputs, the magnitude of additional financial resources required for UEE was calculated. TMC changed the approach completely to costing by different activity components. In an earlier paper, Tilak and Varghese (1983) – both of whom were also members of the TMC later – had used the detailed cost norms given by Ministry of Education to estimate universalisation requirements. These included a variety of heads, including quality improvement. Costing by activity components was to contribute to greater transparency and internal efficiency. Given its importance, the main features of TMC approach are discussed in some detail below.

Jha, et al (2008) emphasize that the norms suggested by TMC were relatively more adequate compared to the Saikia Committee. One of the most important norms suggested was a pupil-teacher norm of 30:1 to be achieved gradually over a 10-year period. A provision of at least two teachers in primary schools (PS), and a minimum of three teachers and a headmaster in every upper primary school (UPS) was made. TMC stressed the norm of one classroom per teacher.

TMC estimated the cost of formal schooling for all children and rejected the assumption that only the cheaper variants of non-formal or part-time education needed to be provided for the millions of children who have remained out

of school. On teachers, similarly the Committee observed that "in very remote and backward regions, para-teachers may play a useful role in the short-run, in promoting higher school attendance. However, in the long run there is no substitute to fully qualified and properly paid teachers." (p.19)

To bridge the gap between the existing situation and a situation where age-specific enrolment reaches 100 percent (the first target for universalisation) reliance was to be on government schools. The Report noted that profit-seeking private enterprise would not be attracted in the foreseeable future in a substantial way to schooling the vast number of underprivileged children of India who have never been to school. Thus the gap had to be essentially bridged through public resources.

Besides the direct school-related and student-related expenditures (such as teacher salaries, teacher support material and aids, construction of school, provision of school equipment), TMC explicitly brought in the elements of support and accountability structures needed for a well-functioning school system. For instance, it took a comprehensive view of the academic support structure comprising of District Institute of Education & Training (DIETs), Block Resource Centers (BRCs) and Cluster Resource Centers (CRCs) which needed both capital and recurrent expenditures to be established. Similarly, community-based monitoring and supervision and research were accounted separately.

The states were divided into two groups, depending on their net enrolment rates. For lower net enrolment states, the timeframe for universalisation was kept longer compared to other groups of states. This assumption along with gradual decline in Parent Teacher Ratio (PTR) meant that the projected expenditures over the 10-year period would rise gradually. The subsequent Central Advisory Board on Education (CABE) report (GoI, 2005) used the same approach as the TMC report but assumed shorter time horizons for universalisation and for the teacher gaps to close in a briefer time span.

A few years preceding the TMC report, another study on investment requirements for UEE by Ramachandran et al. (1997) had brought in a fresh way of looking at the resource requirement issue. At the time, the Ninth Finance Commission had put forth estimates of unit cost function for primary education by regressing the per student expenditure on primary education on enrolment rate, PTR, teacher salaries and price differentials across states. Tilak and Kar (1994) estimated a bivariate cost function with enrolment as the explanatory variable. The main criticism of their method was in the use of past trends in expenditure to project for the future. Ramachandran et al. (1997) note that "using past expenditures as a proxy for costs cannot give anything more than estimates for existing standards of services." Instead, the authors adapted a method used by Colclough and Lewin (1993) to the Indian scenario. Colclough and Lewin had designed a simulation model to estimate the costs of achieving universal primary education in developing countries of the world over a period of 15 years starting from the year 1990. An enrolment transition sheet to document the enrolments in all grades and in all levels of the school system in every year was created as a first step. In the second step, a unit cost spreadsheet was constructed to document the recurrent costs per child enrolled and capital costs per new classroom at different levels of the schooling. In the third step, enrolment transition spreadsheet was integrated with the unit cost spreadsheet to obtain the total recurrent and capital cost.

Ramachandran, et al (1997) estimated investment requirement for universalisation of primary education in India across states. The three steps outlined in Colclough were replicated but with a difference. Moving away from the then prevailing practice of using the average existing per child expenditure derived from macro public expenditure data as the norm (such as in Saikia Committee Report), the authors used the interview method to establish the normative per child expenditure. Based on an interview with the education minister of the government of

West Bengal, the major heads of investment in primary schooling and amount to be invested under each head to provide quality schooling were identified. The PTR was again taken as 30. Capital costs for children not attending school – effectively the OSC – was assumed to be double that of children who were attending schools. While new schools were required for children who were outside the schooling system, there was need to upgrade the infrastructure in existing schools. Recurrent costs were assumed to be uniform for children already in school and the potential entrants or OSC. The other important difference that Ramachandran et al. brought in was in the use of data on children attending as opposed to children enrolled. Based on NSSO data on the school attendance rate for 1987-88, the expected number of in-school and OSC in the year 1995 was estimated. The total requirement so computed was then pitted against the existing expenditure to obtain the additional expenditure required for universalisation with quality.

The above discussion illustrates the few ways in which the resource question has been approached.

2.2 Framework and Methodology

Our objective is to estimate the normative resource requirement for universalisation using a set of reasonable norms. The physical norms for most important inputs for running a school are defined by the RTE Act. The broad guidelines on financial norms as suggested in the literature have been incorporated to build the framework. (i) Norms are to be clearly defined component-wise. Granularity is important for planning and implementation. (ii) Financial norms are to cover required costs and cannot be based on existing levels of public expenditure. (iii) The norms are to apply equitably. The idea of equitable financing is at the core of resource estimation exercise. The education system cannot be stratified. There cannot be hierarchies of schools or teachers. (iv) There needs to be sufficient investment in capacity building of teachers as well as overall management heads. Systemic costs are an important component of Elementary Education costs, unlike the private sector.

One convenient point of reference for resource requirement has been the expenditure per child in Kendriya Vidyalayas or KVs (CBGA, 2011). After all, KVs provide the most satisfactory level of education amongst government schools (GS). The demand for admission into KVs continues to be very high and the institution has held its own despite the expanding market choices. However, KV norms cannot be applied for component-wise costing. Historically, KVs developed as a scheme to provide education to the wards of transferable Central government employees, with its own structures and institutions. The structure of the KVs as composite schools of large size (with average school size of more than a 1,000 and minimum required size of 200) makes the requirements in KVs very different from a small primary school (PS) or upper primary school (UPS) in a village. KVs cater to children upto higher secondary classes. The cost components differ. KVs do not provide free education, textbooks, uniforms or mid-day meals. Residential quarters for staff are an important part of KV costs. KVs have separate system of trainings through Zonal Institutes of Education and Training and are administered by Kendriya Vidyalaya Sangathan rather than the regular education bureaucracy. 25 percent seats at the entry levels in KVs are reserved for children from the weaker sections as in unaided private schools. Norms have to be defined around the present institutions and structures; the very different cost structure means that KVs are unsuitable for the purpose.[8]

The experiences of better performing states, and programs such as SSA and MDM, and the norms suggested in GoI (2005) to our mind, provide a more relevant starting point when it comes to norms for universalisation. The norms have been thereafter scrutinized and reworked as required. In deciding the

8. KVs, however, provide useful benchmarks for analysis, as will be seen in Chapter 3.

norms, we have asked whether the prevalent norms can be considered effective in practice. What more is required to move the system to a desirable position? Ultimately, any selection of norms involves subjective judgment. Also, considerations on what is practicable and can be universally applied versus what is desirable need to be balanced constantly. We have tried to provide rationale for most of the norms selected.

The following points define the broad approach used here.

1. Every school has to comply with the RTE norms and it is not enough that the PTR norm or students to classroom norm is satisfied overall for the state or district or even block. School-level data for publicly funded schools from District Information System for Education (DISE) on present levels of enrolment, infrastructure, teachers, etc., are used along with the relevant RTE norm to calculate the requirement of each component in each school.[9]

2. The estimates take into account the students enrolled in government schools including private aided (GS&A) as well as children who are out of school (OSC). We assume that the OSC will be accommodated in public schools only. It is unlikely that the existing OSC, including children who dropped out, can afford fee charging private schools.

3. From the accounting point of view, the distinction between capital and recurrent costs is an important one. Estimates of capital cost (KC) have to account for the existing infrastructure vis-a-vis requirement in each school to arrive at investment needs. If all the requisite infrastructure is present, capital cost is zero; only shortages in infrastructure are costed. For components of recurring cost (RC), overall requirement is the relevant variable. Another related point on capital and recurrent cost is that the former is to be incurred only for government schools following the existing practice, whereas the later applies for government as well as private aided schools.

4. Components of costs required for running the schools (school level) and the support system that has to ensure that the schools function well (system level) are identified. The adjoining schematic diagram provides an overview of the various components included. There is no separate head on quality; we believe that quality in education would be embedded and reflected through all the other components.

   After applying the relevant unit costs and summing over various components, total requirements for the school level and system level costs are obtained for each state.

5. The additional resource requirement for universalisation with RTE-compliant norms is obtained by deducting actual public expenditure on EE from total requirement.

2.3 Detailed Methodology[10]

Total requirement comprises of capital costs and recurring costs.

Total Requirement (TR)≡
Capital Cost (KC) + Recurring Cost (RC) (1)

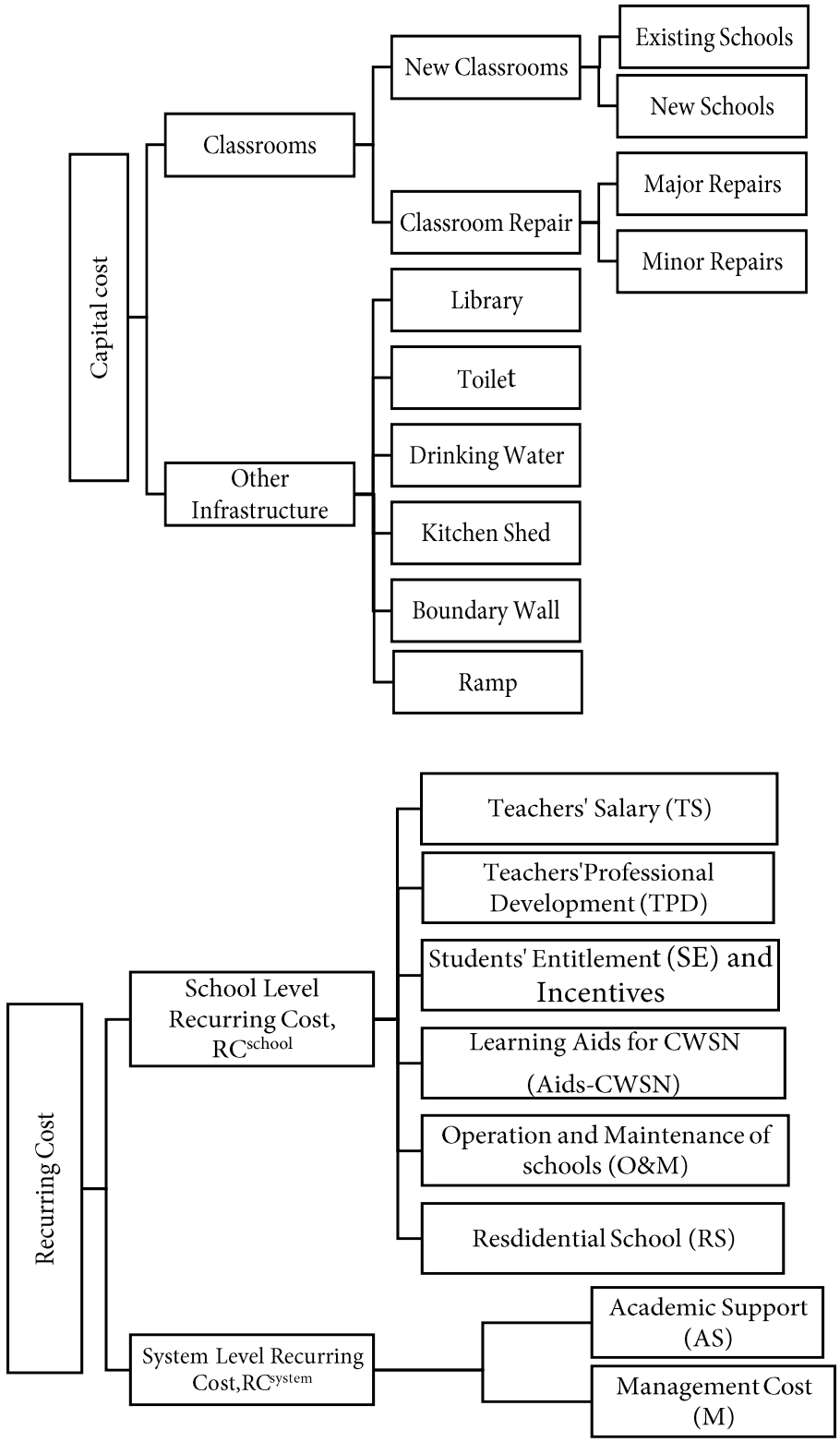
Capital Costs (KC) and its Components

Classrooms are the primary need of any school on the infrastructure front. The use of classroom as a unit for estimating the capital requirement brings in the lumpiness of such investments. The requirement of classroom has to be necessarily met at the school level. Since physical capital is immovable, the deficit in one place cannot be made up with surplus in another school.

9. Schools run by all levels of the government are public schools. Private unaided schools and private aided schools are not part of the public-school system per se, though the latter are financed through public expenditure.

10. Equations have been minimally used in this section. Non-technical readers may directly move to the next section without loss of continuity.

Figure 2.1 Schematic Diagram: Components of Capital & Recurrent Cost by Major Functional Heads



Note: Some other components that are part of the costing but do not fall strictly under the above functional heads include various costs on out of school children, home based education for children with severe disabilities, reimbursement to private schools against the seats reserved for children from disadvantaged and marginalized sections, computer aided learning, etc.

Deficits and surplus can coexist in the system. As per RTE norms, there should be at least one classroom for every teacher and an office-cum-store-cum-head teacher's room in each school. Then additional classrooms (including head teachers room) needed in schools is given by

$$C^{school} \equiv \sum_j (CR_j - CE_j)$$

$$\text{for } CR_j > CE_j \text{ where } j = 1,\ldots..,m \text{ (GS)} \qquad (2)$$

Where, CR_j and CE_j are the number of required and existing classrooms, respectively, in the jth school. Schools with deficit classrooms are identified by the criterion of and then the summation is done only over such schools.

Additional classrooms are required for both in-school and OSC. Let C denote the additional classrooms required, C^{school} and C^{osc} are the additional classrooms required for in-school and out-of-school children, respectively, then

$$C \equiv C^{school} + C^{osc} \qquad (3)$$

Unlike classrooms required for in-school children which can be calculated with accuracy based on actual distribution of enrolment, the classroom requirement for OSC are based on a set of assumptions (see Section 2.4 for details).

Unit costs for classrooms are of two kinds. Classrooms may be constructed in existing schools (is the unit cost) or be a part of a new school (is the unit cost). The unit costs are different for the two cases as the latter set of classrooms would have to factor in costs of other infrastructure such as head teacher room, toilets, drinking water facilities, library, etc.[11] Unit cost for head teacher room is assumed to be same as unit cost for classrooms in existing schools. Assuming p is the ratio of additional classrooms in new schools to total additional classrooms required, we obtain the capital cost to build new classrooms (including head teacher rooms), as follows:

$$TC \equiv (1-p) * C * U_{c1} + p * C * U_{c2} \qquad (4)$$

where C denotes the additional classroom required**.**

In addition, many of the existing classrooms require repair and upgradation. These could be of two kinds – those that require major repairs and others that require minor repairs. Unit costs of both types of upgradation are different too. Suppose C_{maj} and C_{min} denote the numbers of classrooms requiring major repairs and minor repairs and U_{maj} and U_{min} are the corresponding unit costs then upgradation cost of existing classrooms (TU) is obtained by:

$$TU \equiv C_{maj} * U_{maj} + C_{min} * U_{min} \qquad (5)$$

As per RTE norms, every school should have library, separate toilets for girls and boys, drinking water facility, kitchen shed, boundary wall and ramp. The deficits in these facilities have been estimated for the existing government schools, and multiplied with the respective unit costs.

Overall required capital cost is thus obtained by adding cost for building new classrooms including head teacher rooms (denoted as TC), the repair/upgradation cost of the existing classrooms (denoted as TU), cost of infrastructure such as library, toilets, drinking water, kitchen shed, boundary wall and ramp for existing schools (denoted by INFRA) and other one-time investment requirements such as on computers (OTH).

$$KC \equiv q * (TC+INFRA) + TU + OTH \qquad (6)$$

Cost to build new classrooms as well as other infrastructure has been distributed across a few years including the current year. q is the proportion of cost on new classrooms and other infrastructure to be incurred in the current year. The other two components of capital cost – particularly repair works – have to entirely be borne in the current year.

Capital costs on infrastructure needs at the system level or for residential facilities such as

11. It implies that cost of other infrastructure for new schools is implicit in the classroom cost.

hostels could not be taken into account in the absence of requisite information.

Recurring Cost (RC) and its Components

Governments are not only required to spend adequate amounts on schools but must also spend well in order to operate, monitor and manage the entire school education system. Required recurrent cost is obtained as:

Recurring cost (RC) ≡ School level Recurring Costs (RC^{school}) + Recurring Costs for OSC (RC^{OSC}) + System level Recurring Cost (RC^{system}) + Reimbursement Cost (RC^{Reimb}) (7)

A. School level Recurring Costs (RC^{school})

School-level recurrent cost has been divided under six heads in view of the fact that sufficient resources need to be allotted under each head and any lesser disaggregation might result in lack of focus and shortage of resources.

Therefore,

RC^{school} ≡ Teachers' Salary (TS) + Teachers' Professional Development (TPD) + Students' Entitlements (SE) + Operation & Maintenance (O&M) + Learning Aids for CWSN (Aid-CWSN) + Residential School (RS) (8)

Recurring costs at the school level are estimated for children enrolled in GS&A.

Teachers' salary is the major component of recurring cost. Based on RTE norms, four types of teachers are required at the elementary level – primary teachers, those at upper primary level, head teachers and part-time instructors. Following RTE norms, there should be two teachers, for upto 60 children admitted in a primary school. There should be three teachers for 61-90 students and four teachers for 91-120 students. For 121-200 students, there should be five teachers and for above 150 students, the primary school must also have a head teacher. In the upper primary school (UPS) there should be at least one teacher each for (i) science and mathematics; (ii) social studies; (iii) languages and one teacher for every 35 students. For UPS with above 100 enrolment, teacher requirement includes a head teacher and three part-time instructors for (i) Art Education; (ii) Health and Physical Education and (iii) Work Education. These norms apply to every school.

RTE Act thus makes clear the various roles of teachers. Due to the way it specifies teacher norms, the necessary PTR is not constant but varies with enrolment. Suppose T_i is the number of teachers required in the i^{th} school with enrolment . Required PTR in i^{th} school, $RPTR_i$, is a function of E_i, as per RTE norms. Then,

$$\left.\begin{array}{l} T_i = f(E_i, RPTR(E_i)) \\ \quad \text{and} \\ T \equiv \sum_{i=1} T_i \end{array}\right\} \text{where} \quad i=1,\ldots..,m, \; m+1,\ldots,n(GS\&A) \tag{9}$$

Here, m is the number of government schools and n is the number of government including aided schools (the number of aided schools constituting the difference). Teachers' requirement (T) is calculated separately for each type of teacher based on RPTR norm specified in RTE act.

For financial estimates, we draw a distinction between teachers who need to be recruited in order to meet the RTE norms, T^{new} , and those already working, T^{exis}, though both are a part of total teacher requirement, T. The deficit teachers in the system are represented by T^{new}. The need to make a distinction arises from the different unit costs for new teachers versus existing teachers.

$$\frac{T^{new}}{T} \equiv 1 - \frac{T^{exis}}{T} \tag{10}$$

We estimate T^{new} and T^{exis} for each type of teacher. If there is deficit in teachers across all the

teacher types then total number of new teachers needed are the sum of the deficit teachers of each category. However, there can be deficit in one category of teachers, say primary and surplus in other category of teachers, say upper primary. In such cases, deficits net of surpluses provides the total number of new teachers needed. The deficit teacher calculation (T^{new}) is thus a net figure. Teachers at the elementary stage can substitute each other in terms of their roles, and we assume that teachers can be transferred across different schools and regions in a state.[12]

Separate unit costs are applied for new and existing teachers. New teachers and existing teachers draw salary on the same pay scale, with salary graded as per experience. New teachers with no teaching experience, start at the same salary across states. Salaries of existing teachers' vary across states, depending on the average experience of the existing teachers. Cost on teacher salary is calculated as

$$TS \equiv T^{exis} * U_{ts}^{exis} + T^{new} * U_{ts}^{new} \quad (11)$$

where U_{ts}^{exis} and U_{ts}^{new} are the unit costs for teachers' salary of the existing and the new teachers, respectively. TS is calculated for various types of teachers..

The effective unit cost on teachers' salary (effective U_{ts}) in any particular state varies with average years of experience of teachers (exp of T^{exis}) and the share of existing to required teachers $\left(\frac{T^{exis}}{T}\right)$ in the state.

$$\text{Effective } U_{ts} = f\left(\frac{T^{exis}}{T}, Exp \text{ of } T^{exis}\right) \quad (12)$$

Resource requirement for teachers' professional development (TPD) include in-service training for the existing teachers, pre-service training for new teachers and training of untrained teachers. The latter is an acknowledgement of the reality that there are many untrained teachers in the system. Besides teacher professional development through trainings, a certain number of fellowships for teachers for a duration of one year has been included. This idea is proposed in the Report of the Common School System Commission (Government of Bihar, 2007) in the context of Bihar school education. It is to enable teachers to undertake a research or writing project or pursue some other creative idea of their own related to education

Students enrolled at elementary level in the government schools are to receive textbooks and uniforms for free education is their entitlement.[13] In addition, children enrolled at elementary level are to receive mid-day meals (MDMs) in all elementary government as well as private-aided schools as per the National Food Security Act, 2013.

RTE Act doesn't specifically mention scholarships for elementary education; it makes a broader reference to mitigating disadvantage that may prevent children from enrolling/ participating/completing their education. Even where education is free, it has been witnessed that indirect costs related to schooling continue to keep school out of reach for many children. Incentives covering other costs linked to school attendance can play a role in enabling marginalized children to participate in school. Experience from a broad group of countries points to the positive effects of measures supplementing the abolition of fees (UNESCO, 2010). In many Indian states, children from the socially and educationally disadvantaged groups SC, ST, minorities and OBCs receive scholarship money. Some scholarships are targeted at girl children, while some are directed at specific regions. We assume a certain percentage of students in GS&A would be provided monetary incentives (see assumptions in the next section).

For operation and maintenance of schools (O&M), schools are provisioned with two

12. This assumption is problematized in Chapter 3.

13. As per the present SSA framework (GoI, 2011) students in private aided schools are entitled to free textbooks, but not uniforms.

grants under SSA – one for consumables and equipment (school grant) and the other for annual maintenance of durable assets (maintenance grant). The present levels of maintenance grants to schools has especially been a sore point. The school is the unit for the SSA norm for maintenance grant, irrespective of size. Now, schools may be of various sizes, with different maintenance requirement. Instead of a uniform rate for maintenance irrespective of school size, we allow the number of existing classrooms to determine the quantum of maintenance grants. We classify schools in three brackets – schools with 5 or less classrooms, schools with more than 5 but less than 20 classrooms and schools with more than 20 existing classrooms. Maintenance grant increases proportionately across the three brackets.

As part of operation and maintenance of schools, an explicit provision is being introduced for part-time non-teaching staff to perform the roles of cleaning and filling water in every school. A clean and healthy environment is helpful in creating a better learning environment. Often cleanliness is a parameter on which parents judge a school. Presently, students themselves and on rare occasions teachers clean the school premises. Without denying the fact that keeping the surrounding clean is a part of learning and therefore children should participate and learn from it, a minimum cleanliness must be ensured by the school system. The number of housekeeping staff would vary with the size of the school.

Under operation and maintenance, an untied grant is also added so as to allow schools to spend on context-specific needs within an accountable framework. These could be used for a variety of heads. A school may want to appoint security staff as thefts of property are common in many schools. Security staff can help children negotiate busy streets along which the school may be situated. Where students find it difficult to physically access the school, the grant can be used to organize local transport. It is our experience that a lot of time drinking water and toilet facilities, while being present in the school, are hardly usable in the absence of repair and maintenance. The untied grant is to provide schools with flexibility and independence in their spending decisions. School level administrative costs have not been considered separately. It is expected that system level support should be adequate in this respect.

RTE Act recommends meaningful and quality education for every child with special focus on children with special needs (CWSN). Intervention in the form of learning aids is costed for children enrolled in GS&A and a higher provision for home-based schooling is provided for the severely disabled children. Residential schools (RS) – though not widely prevalent at the elementary stage – have been used as a strategy for inclusion of socially disadvantaged groups in many contexts. Hostel facilities for the students enrolled in residential schools are costed appropriately.

B. Recurring Costs for OSC (RC^{OSC})

OSC are the segment of the population who either dropped out of the system or have never enrolled. The necessary process to include OSC in schools must begin in the current year. Two kinds of requirements are considered for OSC. Section 4 of RTE Act specifies that, "Provided that where a child is directly admitted in a class appropriate to his or her age, then, he or she shall, in order to be at par with others have a right to receive special training." . Financial provision on special training for OSC through residential and non-residential bridge courses is one component. Once the children are absorbed in schools, their effective inclusion would need sustained work and enabling inputs. Per child recurrent cost for OSC once they start attending schools would need to be higher than the PSRC for those already in schools. This is ensured through a markup on per student recurring cost for students who are in school.

C. System Level Recurring Cost (RC^{SYS})

A well-functioning school requires a robust system to support it. The system level provisions, though equally important as the school level provisions, have received less attention. Section 23 of RTE Act lays down the eligibility criterion for teacher appointment. The availability of institutional capacity for teacher preparation, however, varies across states. The institutional capacity for teacher education and teacher shortages have been found to be inversely related (GoI, 2012). Then, there are weaknesses in the monitoring and supervision system at all levels (CAG, 2017). Any school visit throws up a picture where teachers are occupied with loads of paperwork rather than teaching. CRCs perform the role of post office collecting data rather than academic support. A well-resourced administrative structure is important to take off the administrative roles that teachers often need to perform. Adequate personnel and enabling technology such as computers or tablets can lessen the burden of data reporting by teachers. Field experience also shows that a lot of groundwork needs to happen before institutions like School Management Committees (SMCs) can become effective mechanisms for accountability and help improve school functioning.

System-level requirements have been divided under two heads – academic support (AS) and management (M). District Institute for Education and Trainings (DIETs) and state level, State Council for Educational Research and Training (SCERT) are the key institutions for teacher education and training. Cluster Resource Centers (CRCs) and Block Resource Centers (BRCs) are supposed to provide academic support on the ground. MHRD's new Guidelines (GoI, 2012) form the basis for normative cost calculations of DIETs and SCERTs. System-level norms for academic support through CRCs and BRCs are based on SSA Framework (GoI, 2011).

Costing of management head includes: (i) EE administration at various levels (state, district, block), state project office and district project office; (ii) cost on REMS (research, evaluation, monitoring, and supervision) (iii) training of the members of SMCs/PRIs; and (iv) community mobilization. The diversity in the administrative structures makes the setting of administrative norms difficult. Management cost is expressed as a percentage of the school-level recurring cost $RC^{school,}$ recurring cost for OSC, RC^{OSC} and recurring cost on academic support.

The last element of recurring cost is the cost of reimbursement to private unaided schools as per the section 12 of the RTE Act (RC^{Reimb}). The number of children reimbursed under this clause is taken as the base for calculation (discussed further in the next section).

Once the components of recurring cost are computed, summation over recurring cost components and annualized capital cost gives total requirement (TR) for a particular state. Additional requirement (AR) is estimated by subtracting actual expenditure (AE) on EE in that state from total requirement.

$$AR \equiv \begin{cases} TR - AE & \text{if } TR > AE \\ 0 & \text{Otherwise} \end{cases} \quad (13)$$

Applying the above method, estimates are obtained for each Indian state for the year 2015-16 (see Chapter 3).

2.4 Assumptions for Estimation

2.4.1 Unit costs

Unit costs are selected from a wide variety of sources. We have deliberated on the practice followed by a number of institutions and programs. Discussions with practitioners, scholars and administrators have guided the selection of unit costs. Unit costs under each head are reported in Table 2.1. For select heads, SSA unit costs adjusted for inflation have been used. For most others, such as teachers' salary, textbooks, maintenance grants, management, academic support, etc., we eschew the SSA norms/practice and have used more adequate and equitable norms. There are

several additional heads of expenditure (helper at school, untied grants for operation and maintenance at school, markup for OSC, etc.) going beyond the existing heads, for which the norms have been freshly worked out.

For capital cost, a cost sheet applicable for schools located in small towns was shared by Azim Premji Foundation. The costs quoted by Azim Premji Foundation have been corroborated from other sources. For instance, unit cost for classroom assumed at Rs 9 lakhs including furnishing is based on calculations of the covered area and per square foot construction rates. These are found to be roughly comparable to plinth area rates given by Central Public Works Department. We have used the definition adopted by DISE for upgradation costs. Upgradation costs are of two types: major repair and minor repairs. According to DISE instructions to the school, unit cost for minor and major repairs have been assumed to be Rs 5,000 and Rs 30,000 respectively.[14] Unit cost of capital items are assumed to be same for all the general category states. For special category states, unit costs for infrastructure are considered to be 30 percent more than the general category states. This has been done to take into account the greater difficulty of building infrastructure in hilly areas.[15]

Unit costs for teachers' professional development, school grants, school uniforms, special training of OSC and aids for CWSNs are calculated based on the SSA Framework (GoI, 2011) after adjusting for inflation between 2010 to 2015. The latter is necessary as SSA unit costs have not been revised upwards for a long time. MHRD officials admit to the inadequacy of the present financial norms. Inflation adjustment increases unit costs by 50 percent on these heads. For textbooks, the average cost of elementary-level textbooks of NCERT, for PS and UPS are calculated and applied, as we feel these provide more appropriate benchmark compared to the SSA norms. Unit cost for MDM is decided based on the government-defined food norms, food grains cost supplied by the Food Corporation of India and the latest government-defined cooking costs. Hostel cost for students in residential schools is derived from SSA's financial norm for running KGBV schools. Unlike the other heads, these financial norms have been revised upwards by the MHRD.

14. Roof repairs are the major repairs in the school context, whereas the minor repairs include plastering, flooring, etc. Repairs do not include cosmetic works like white washing, painting, glass fittings.

15. The ballpark figure of 30 percent is decided based on personal interviews with architects and civil works personnel. Capital cost in Assam is considered at par with general category states.

Table 2.1: Head-wise Unit Costs

Head	Expenditure Head	Unit Cost
Teacher Salary(per teacher)	Teacher Existing	Pay scale Rs 5,200-20,200 with GP Rs 2,800 in PS & GP Rs 3,200 in UPS
	New Teacher	@Rs 19,300(PS), @Rs 20,300 (UPS)
	Head Teacher's Salary	@Rs 40,000
Teacher Professional Development (per teacher)	Part-time Instructors	To teach Art, Work and Physical education at UPS @Rs16,000
	Refreshers in-service training	10 days at BRC @Rs 300/day
	Cluster level meeting	1 day per month for 10 months at CRC @Rs150/day
	Induction training	30 days @Rs 300/day (for new teachers)
	TLM	@Rs 750
	Training of untrained teacher	@Rs 6,000
	Teacher Fellowship	@Rs 1,00,000
Student Entitlement (per student)	MDM	@Rs 6/day & @Rs 8/day for 200 & 240 working days for PS & UPS respectively
	Uniforms	@Rs 507
	Textbooks	@Rs 192 (PS), @Rs 482 (UPS)
Operation,& Maintenance (per school)	Maintenance Grant	@Rs 11,250 (If CE≤5), @Rs 22,500 (If 5<CE≤20), @Rs 33.750 (If CE>20)
	School Grants	@Rs 7,500(PS) & @ Rs 10,500(UPS) & @Rs 18,000(PS & UPS)
	Part time help for water and sanitation	@Rs 5.000 (If CE≤5), @Rs 10,000 (If 5<CE≤20), @Rs 15,000 (If CE>20)
	Others (untied grant)	@Rs 50,000
OSC	Bridge Course	@Rs 30,000 (Residential)& @Rs 9,000 (Non-residential)
CWSN (per child)	Learning Aids (for in schools children)	@Rs 4,500
	Home based education for severely disabled children	@Rs 1,00,000
Residential School (per child)	Hostel Facility	@Rs 19,000

Recurring Cost (System level)		
Head	**Expenditure Head**	**Unit Cost**
Academic Support through CRC (per CRC)	CRC coordinator (1)	@Rs 40,000
	Grants, Meeting, TA	@Rs 43,500
	Training of Coordinator	@Rs 3,000
Academic Support through BRC (per BRC)	BRC resource person (8)	6 (subject specific), 2 (CWSN) @Rs 40,000/person
	MIS coordinator (1)	@Rs 30,000
	Data entry operator (1)	@Rs 15,000
	Accountant cum support staff (4)	@Rs 15,000/person
	Grants, Meeting, TA	@Rs 1,80,000
	Training of resource person	@Rs 3,000/person
Academic Support through DIET (per DIET)	Faculty (2+25)	Principal & Vice Principal @Rs 80,000/ person
		Faculty @Rs 50,000/person
	Technical Staff (6)	@Rs 30,000/person
	Other Staff (16)	@Rs 15,000/person
	Grants, Meeting, TA	@Rs 3,00,000
Academic Support through SCERT (per SCERT)	Faculty (2+46)	Director & Joint Director @Rs 80,000/ person
		Faculty @Rs 50,000/person
	Technical Staff (8)	@Rs 30,000/person
	Other Staff (15)	@Rs 15,000/person
	Grants, Meeting, TA	@Rs 5,00,000
	Development of Curricular Material (Within and Outside SCERT)	@Rs 1,00,00,000

Non-Recurring Cost		
Head	**Expenditure Head**	**Unit Cost**
Infrastructure cost	Classrooms	500 sqft, @Rs 1800/sqft*
	Minor Repairs	@Rs5,000/classroom
	Major Repairs	@Rs 30,000/classroom
	Library	1250 sqft, @Rs 1,800/sqft
	Toilets (Boys & Girls separate)	350 sqft, @Rs 1,800/sqft each
	DrinkingWater Area	15 sqft, @Rs 1,800/sqft
	Boundary Wall	850 sqft, @Rs 260/sqft (50 Running meter)
	Kitchen Shed	250 sqft, @Rs 1,800/sqft
	Ramp with Rails	@Rs 32,000 for 1:12 gradient and 1.6 meter width
Computer Aided learning		@Rs 50,00,000 per district per year.

Note: Teacher salary & salary components of academic support are monthly figures,
* Classrooms in new schools have to be provided with other infrastructure (library, toilets, etc.) The composite costs therefore are higher at Rs 22 lakhs/classroom

Among the additional heads that we have introduced, an untied amount of Rs 50,000 per school is added to the recurrent costs for operation and maintenance or other spending decisions that the school management may for running the school. A minimum of one part-time staff for water, cleanliness and sanitation is provided at the rate of Rs 5,000 per month in every school (see Table 2.1 for details). Teacher fellowships for research and writing have been considered at a cost of Rs 1,00,000 a year for 500 teachers in large states and 300 teachers in smaller states.[16]

We have assumed that OSC children will be accommodated in the government school system. There is provision for bridge course for all the OSC in 2015-16. 90 percent of children taking the bridge course are assumed to avail of the non-residential facility, while the remaining take a residential bridge course. Unit costs are higher for the residential facility. Following the bridge course, half of the students are assumed to be enrolled into schools the same year, whereas the remaining half are enrolled in the following year. A 10 percent markup on PSRC applies on school admission for these children. This is to allow for extra classes/teaching time/ individual attention so as to allow children to integrate and settle on the learning path.

Scholarship schemes vary across states but in most states cover the socially and educationally disadvantaged groups, SC, ST, minorities and OBCs. We assume that half of the enrolled children in elementary grades will receive scholarship at the rate of Rs 1,000 per annum. The reason for covering half the children under a scholarship scheme is to at least cover the marginalized groups. A major part of the incidence of scholarship would be on girls. Table 2.2 gives the composition of students by social groups in government schools and their share in population at the all-India level. Predominance of students from marginalized groups compared to the rest implies that the coverage of scholarships in the public school has to be large. The particular design of scholarship scheme including whom it would target would depend on the socio-economic contexts of the states and their policy priorities.

Table 2.2: Composition of Students in Government and Aided Schools

	Compositionof Students in GS&A (percent)	Share in Population (percent)
SC	22.5	19.1
ST	13.0	9.9
OBC	43.0	43.2
Others	21.5	27.8

Source: NSSO, 2014-15.

Coming to management costs, the administrative structure and sizes of administrative offices differ across states. Lack of state-specific information makes it difficult to estimate management cost component wise for each state. Instead, management cost is expressed as a percentage of other recurrent costs (all recurrent costs less management cost). Larger the public school system, higher would be the management cost. Management cost is provisioned at 4 percent of the other recurrent cost, a norm followed by GoI (2005). In most cases, the 4 percent share suffices to cover the management requirements, when calculated component- wise. Except where the private presence is substantial and therefore size of government sector is small, the proportional method could prove insufficient.[17] In states with large private presence, government administration has the task of regulating private sector activities and therefore must be of a suitable size. For states with high private presence (defined in terms of enrolment share in GS&A at less than 60 percent in the state) as well as small states, management cost is set at 6 percent of the other recurrent cost.[18]

16. Large states include the major general category states.
17. Detailed component wise estimates of management costs were computed for a few major states for this exercise.
18. This includes Andhra Pradesh, Telangana, Haryana, Punjab, Rajasthan, UP and Goa, besides the Special Category states, Delhi and Puducherry and other Union Territories.

2.4.2 Teacher's salary

RTE leaves it to states to formulate their own rules and terms of recruitment. How does one obtain a benchmark for a teacher's salary? A number of considerations go into the selection of normative salary of teachers.

Teacher's salary should be such as to offer a decent and fair wage to all teachers. All teachers after controlling for experiences and possessing minimum qualification should receive similar salaries for similar work. Since teachers' salaries comprise majority of the recurrent requirement, the pay scale cannot be too high. We have assumed a Pay Scale Rs 5,200-20,200 with grade pay Rs 2,800 (for teachers in PS) and grade pay Rs 3200 (for teachers in UPS). It is similar to the pay scale followed for teachers teaching at the primary level in TN and Maharashtra – two states with above average educational performance. This common pay scale is assumed across states. New teachers are at the beginning of the scale whereas the salary corresponding to the average years of service of existing teachers has been used for existing teachers in a state. The data on mean years of experience of elementary teachers is derived and mapped on to the pay scale to obtain the salary structure. Including allowances, the average figure ranges between Rs 25,200–31,000 for existing PS teachers and Rs 26,500-32,600 for existing UPS teachers. Salary at the beginning of the scale is Rs 19,300 and Rs 20,300 for PS and UPS teacher, respectively.

A few points need stressing on teacher's salary. (a) As already stated, all teachers performing similar job must receive the same salary. There shall be differences across classes taught (PS vs UPS), minimum teacher qualification and years of experience. Within the public sector, teachers with similar qualification, similar experience must draw similar salary. This will not only reduce the job insecurity, instability and tendencies towards searching of better jobs but also break the existing power relation that works between teachers employed on various terms. (b) There can be variations across states in teacher's salary depending on the cost of living. That is the only tenable logic for variation in teacher's salary across states.[19] (c) We have not related teacher's salary to the fiscal capacity of the state. If we accept the principle of equal pay for equal work, different terms of employment cannot be defended. There is no reason why children should suffer because of their place of birth; (d) In looking for a norm, we could have looked at Kendriya Vidyalaya in the pay band of Rs 9,300–34,800, which is obviously higher, for comparable qualifications.[20] To what extent the higher scales are necessary to attract talent into the teaching profession needs to be tempered with concerns over equity. In fact many Indian states have higher pay scales than what we have assumed. This may be a hindrance for the equal pay principle. Recall that Education Commission (GoI, 1966) had spoken of living wages for teachers. Very high scales would mean privileging a few over the majority.

2.4.3 Capital Accounting

We assume that capital costs (other than on major and minor repair) are spread across five years. TMC had used the projection period of 10 years to spread the capital cost. With RTE in effect since 2010, a five-year period is reasonable time-span to bridge the existing gap in capacity. The backlog of infrastructure requirement will be met across five years (2015-2019), with cost spread such that 25 percent cost is incurred in first year, 22.5 percent in second year, 20 percent in third year, 17.5 percent in fourth year and 15 percent in the year 2019-20, respectively.

19. For a macro exercise such as ours, variation in Dearness Allowance could not be incorporated.

20. Even with the same pay scale, salaries of teachers in state government schools are lower by a significant percentage vis-à-vis those in Central Government schools. This difference is due to the non-applicability of Transport Allowance (TA), Dearness Allowance (DA) on TA and the different calculation of National Pension Scheme for state government school teachers.

To accommodate OSC, we assume the stock of surplus classrooms can be put to use. However, all surplus classrooms may not be useful as their concentration may differ from the spread and concentration of OSC. We couldn't access information on school mapping. In the absence of data on school mapping, we assume half of the surplus classrooms in a state may be used to accommodate OSC. Classrooms needed in excess of the existing surpluses have to be built. These will be distributed across existing and new schools (and over time) in the same ratio as assumed for in-school children.

Apart from covering the backlog in infrastructure targets, population growth will raise the demand for additional infrastructure in some states. Adequate infrastructure needs to be in place before new batches of students join school. Keeping that in mind, a forward adjustment of the capital costs for accommodating population-induced increase in enrolment is made.

2.4.4. Reimbursement Expenditure

Under Section 12, the RTE Act lays down that private-unaided schools shall admit at the entry level at least 25 percent of the strength of that class children belonging to weaker section and disadvantaged group in the neighborhood and provide free and compulsory elementary education till its completion. Such schools will be "reimbursed expenditure so incurred by it to the extent of per child expenditure incurred by the state, or the actual amount charged from the child, whichever is less…" The maximum unit cost for reimbursement in 2015-16 is per child recurrent expenditure on EE by the respective states in 2014-15. We assume that maximum unit cost applies to half of the existing students enrolled under this provision of the RTE Act. For the remaining, a unit reimbursement cost of half of previous year's per child recurrent expenditure by the states is taken. This would capture the spectrum of private school fees.

2.4.5 New schools

Additional classrooms required in new schools are assumed at 5 percent of the total additional classrooms required (p in equation 4 is equal to 0.05). Requirement for new schools would be in cases where the land for extension of the school building is not available and neither construction of additional storey feasible. New schools will also address issues of access, where required. To get a more concrete idea on the necessity of new schools, school mapping data is necessary. Alternately, NSSO data on access – defined as distance to schools – is used. NSSO (2014) reports the data on access in terms of distance to schools. At the primary level, for about 94 percent of households, the distance to school is within 1 kilometer and for the upper-primary an equal proportion have access to schools within 3 kilometers. These are all-India estimates. The weightage of 5 percent ($p = 0.05$) is broadly in line with NSSO results on school access.

2.4.6 Actual Expenditure

There are a couple of assumptions relating to actual expenditure. Schools run by the Central government are adequately funded and therefore unlikely to have a gap between requirement and expenditure. For these schools, we assume that actual expenditure matches with the requirement. For the 5 UTs, where there is no separate budget (Andaman & Nicobar Islands, Chandigarh, Dadra & Nagar Haveli, Daman & Diu and Lakshadweep) we again assume that expenditures match the required costs.[21] Since the 5 UTs account for a tiny 0.16 percent of the overall enrolment in GS&As, this assumption does not impact the macro picture.

21. The expenditures incurred by 5 UTs are accounted within the Union Budget along with the expenditure incurred by the Union Government.

2.5 Data Description

2.5.1 School-level Data

The basic source of data used in this study is the District Information System for Education (DISE). DISE was an initiative taken under the District Primary Education Programme during mid-1990s to have detailed information on school education in India. It is the most comprehensive dataset on school education currently available in India both in terms of its coverage (sample and the variables) and the level of disaggregation. School is the unit of collecting data in DISE and it claims to cover all the schools under Department of Education, Tribal or Social Welfare Department, Local body, Private-Aided and Private-Unaided.[22] The data is first collected at the schools, next it goes to the CRC coordinators and then to the BRC coordinators. BRC coordinators submit the information to the district offices from where it finally reaches the State Project Offices (SPO) of SSA. As per design, the accuracy of data is to be tested at every level from CRC coordinators to the SPO offices. It is mandatory for all the states to verify the DISE data sample by an external monitoring agency on a 5 percent sample bias. Since the DISE data is collected from every registered school in the country, it is supposed to be free from sampling error and with availability of data at every cluster, blocks, districts and states, it is closer to the population data.

The primary reason for adopting DISE as the basic source of data in our study is that the data collection method in DISE takes school as a unit. Consideration of such a micro unit enables researchers to look into the infrastructure and the working of the system at the highest degree of disaggregation. Aggregate level data can be used only to provide the net picture in physical infrastructure and human resources. Net figures understate the actual situation as deficits are offset by surpluses. In addition to the basic information on school enrolment and other facilities, DISE collects detailed information on teachers. This aspect of the dataset has not been explored by researchers, though the information is rich in detail. Among several characteristics of the teachers on which data are provided in DISE, year of joining in service, professional qualification, type of teacher and class taught are the ones used in this study. The data on year of joining in service is used in calculating teacher experience which has a bearing on teachers' normative salary. The data on teacher's professional qualification is useful to distinguish between existing trained and existing untrained teachers. The data on type of the teacher is used to classify teachers as teacher, head teacher and part-time instructor. We make use of the information on classes taught and the main two subjects taught to calculate the number of elementary teachers and to what extent the subject specific teachers as mandated by RTE for UPS are available. The extensive use of teacher details from DISE is one unique point of the study.

While DISE provides relevant information on teachers, it misses out on important aspects of the teacher cadre. DISE classifies teachers as regular, part-time and contractual teachers. This is hardly enough to bring out the variety of teacher types that coexist in a state. The differential terms of employment of teachers is lost in the restricted categories. A further decomposition of teacher type in DISE questionnaire therefore is needed to have a nuanced understanding of the teacher scenario as it exists.

Some definitional issues need mention. Definition of elementary school and elementary teachers used by us differ from the definitions considered in DISE State report card. As a result, our estimated figures for number of schools and number of teachers differ from the figures reported in DISE State report cards. We have considered schools with positive elementary enrolment rather than taking all schools with elementary section. We define elementary teacher as a teacher who teaches elementary classes – primary, upper primary

22. In 2015-16, DISE covered as many as 1.45 million elementary schools in 680 districts across 36 states & UTs.

or both. DISE State report cards, however, count all teachers working in schools with an elementary section as elementary teachers irrespective of whether they teach elementary or higher classes. The figures for number of teachers reported in DISE State report card are misleading, according to us, and overestimate the existing teachers in the system. For instance, in Himachal Pradesh, DISE estimate of number of teachers gives an average PTR of 8.75 whereas PTR is 13.58 based on our calculations of elementary teachers. It is true that in composite schools occasionally teachers teach across the classes. It, however, places a huge teaching burden on teachers that ultimately results in a compromise in teaching quality. RTE thus asks for dedicated elementary teachers from a professional cadre of elementary teachers (Kumar, 2018).

The other major problem relates to data authenticity. Discrepancies between UDISE dataset and the data collected by CAG (2017) were noticed in 18 states/UTs during physical verification of test checked schools (Para 3.22). CAG (2017) also refers to the difference in UDISE data and monitoring surveys conducted by NCPCR. DISE data has been criticized for overstating the enrolment figures. Over the years, DISE has tried to correct these problems but weaknesses prevail. Another limitation that follows from the self-reporting format is under coverage of the number of private schools, especially the low-fee private schools. DISE admits that schools under private management might not be full covered. Obtaining data from private schools is a challenging task and some schools are yet to be covered in DISE data.[23] Government schools, on the other hand are serious about filling up the DISE. Since our focus is essentially the public school system, our requirement calculation is not really affected by the under-reporting of the private schools.[24] Nevertheless, the limitations of data become limitations of our approach and estimates.

2.5.2 Public Expenditure Data

Data on actual expenditure on EE is compiled from state budget documents and Finance Accounts of states and the Union Government for 2015-16. Budgetary expenditure on EE is divided into revenue and capital expenditure. The major head and sub-major head corresponding to revenue expenditure is 2202-01 (revenue expenditure on elementary education within the major head general education), while the relevant expenditure on capital account is given in 4202-01-201. Until recently, funds allocated on several Centrally Sponsored Schemes (CSSs) were transferred directly to state implementation societies bypassing state budgets. Only the states' matching shares were reflected in the state budget, whereas the Central shares had to be added separately. By 2015-16, the mechanism of Central transfers has changed from off-budget to one where the funds are channeled through the state budget. Thus, funds for SSA, the flagship CSS and vehicle for implementation of RTE, are reflected fully in the recent state budgets. Expenditure on mid-day meal scheme has been added, wherever it is accounted separately.[25]

23. See page viii and ix, NUEPA (2016a).

24. For our purpose, information on the private schools is needed to the extent the government would need to reimburse cost for children admitted in private schools under the 25 percent quota (Section 12 of the RTE Act). While one cannot be sure, private schools missing from DISE database are less likely to also adhere to the requirement of Section 12.

25. Expenditure on mid-day meal scheme (MDMS), another CSS has been accounted differently across different states. In some states, it is included under 2202-01. In some other states, it occurs under the major head 2236 (Nutrition) such as in Delhi and Tamil Nadu. Where the Scheme is administered by Rural Development Department, it occurs under the major head 2515 (other rural development program). At times the accounting classification has little relation to the department/ ministry which administers the MDM program or how it is administered. In Jharkhand and Delhi, the MDM is run by school education department. In Jharkhand it is a part of 2202-01 whereas in Delhi it figures under the head 2236 (Nutrition). In Karnataka, the MDM program is subsumed under the grants-in-aid to local bodies under 2202-01 which

A portion of the expenditure on EE is incurred by departments such as social welfare departments and accounted separately in the budget. In some states, the Department for Welfare of Scheduled Castes, Scheduled Tribes and OBCs (DoSW) allocate funds to schools that are not captured under 2202-01. Instead they are booked under the major head 2225 (01/02/03-277), welfare of scheduled castes, scheduled tribes and other backward classes. A few states also allocate funds for education of minorities under the head 2225-04-277. The DoSW spends on functional heads such as residential schools, hostels, scholarships, etc. It is difficult, however, to bifurcate this spending into EE and expenditures on other levels of education. For example, expenditures on hostel for SC boys, hostel for SC girls, merit scholarship to SC/ST/OBC and minority students, classes I to XII, are difficult to truncate. To get around the problem, we first compute the percentage of elementary enrolment to total enrolment in schools run by DoSW from the DISE dataset. This is then used as weights to obtain the spending on elementary students under the select heads – residential schools and day schools run by DoSW. Scholarships by DoSW reported under 2225 have not been included, as there is no way of bifurcating this expenditure across levels. DISE doesn't provide information on scholarships. As a result, there might be an element of underestimation of actual expenditures in states, where this budget head is significantly high.

Another complication in budgetary accounting comes from composite schools. Expenditure on EE should be the sum total of expenditure made on elementary students. Since all the students enrolled in composite schools are not elementary students, presence of composite schools can create difficulty in segregating education expenditure between elementary and secondary. We have observed that for some states, per student expenditure on elementary education is very low although per student expenditure on secondary education is reasonable. We have identified four such states, Delhi, West Bengal, Punjab and Goa. These are the states where per student expenditure on secondary education is so large relative to the per student expenditure of EE that the difference is more than twice of the latter. These are also the states with large presence of composite schools. In Delhi and West Bengal, share of enrolment in composite schools are 50.2 percent and 43.6 percent respectively. It is our contention that expenditure on EE reported in budget is underestimated, whereas secondary education expenditure is overstated. Taking cognizance of the difference, we use per student expenditure on school education as a proxy for per student expenditure on EE for the above mentioned four states.

Expenditure booked under the revenue expenditure heads is used to proximate actual recurrent expenditure. Budgetary classification of revenue and capital expenditure doesn't truly reflect recurrent and non-recurrent expenditure, respectively, as most of the capital expenditure is booked under revenue expenditure head. This doesn't impact the total expenditure though.

2.5.3 Data on Out of School Children (OSC)

Another data source used in this study is National Sample Survey Organization (NSSO) data. It has been used to estimate the number of out of school children for each state. NSSO conducts nation-wide survey of households in its special education round and collects information on vital education statistics such as attendance, enrolment, incentives received by students, out-of-pocket expenditure on education etc.[26] We have used the latest round, the 71st round (January-June, 2014) to estimate OSC.

are bifurcated in the state budget not by functional heads but by districts. This arbitrariness of accounting is one reason why researchers often fail to explicitly include MDM expenditures as part of elementary education expenditure. Dongre and Kapur (2016) add the major heads 2202-01 and 4202-01-201 to obtain the elementary education expenditures for all major states. However, their figures are not strictly comparable with ours as MDM is included in 2202-01 in certain states and not included in others.

26. Till date there have been five NSS rounds on 'Social Consumption: Education' – 35th round (July 1980 – June 1981), 42nd round (July 1986 – June 1987), 52nd round (July 1995 – June 1996), 64th Round (July 2007-June 2008) and 71st round.

There are two main methods of OSC estimation. Administrative data sources, like the DISE, gives age-specific enrolment rate. The other source of information are household surveys/ population census which asks questions related to children enrolled and attending educational institutions. A detailed comparison of the methodology and estimations of various estimates at the all-India level is found in UNESCO-UNICEF's (2016) "Estimating the number of out of school children – Methodological problems and alternative approaches". The authors find that no estimate is free from biases. Census underestimates the attendance rate, while the same calculated from SRI-IMRB data is very high. DISE has an advantage as it is the population data at school level collected systematically every year. However, as we have discussed earlier, DISE understates enrolments in private schools, which would influence the estimate of OSC. We have thus preferred to use NSSO survey round data on school participation to derive OSC estimates.

The steps involved in estimation of OSC are the following. First, the number of children currently not attending school in the age-group 6-13+ is obtained for each state using the latest NSSO round survey household level data, 2014-15. This includes children who have never attended as well as attended but not currently attending, i.e., children who have dropped out. Some of these students are still enrolled and thus this number must be adjusted to obtain the OSC in 6-13+ age group. Secondly, population of children that the NSSO sample of children in the age-group 6-13+ represents is then used to arrive at the percentage of OSC in 2014-15. This ratio is then applied to the estimate of projected population of the relevant age-group in 2015-16, assuming that the percentage of OSC in 2015-16 is same as of 2014-15. [27]

The framework and methodology (along with the underlying assumptions) applied to the data, provides estimates of resource requirements for every state. The next chapter will discuss the estimates in detail.

2.6 A Few Remarks on the Approach

Before we conclude, it would be pertinent to discuss some features of the estimation method we have adopted.

One of the advances that the present study makes is the use of unit level data on schools with application of norms at the school level. Besides, unit level data on teachers has been used for the first time for more accurate estimation and understanding of the resource question. Teachers are the most significant resources in the education system and financial estimates need to reflect the teacher component more precisely than has hitherto been the case.

One way of calculating additional requirement could be simply by costing the physical gaps, teacher gaps, etc.[28] This method would ignore the problems in valuation of existing resources. In the methodology adopted here, we compare the normative total requirement estimates with existing total expenditure on EE. Not just the gaps in quantitative terms but the differences in valuations get reflected. This method has both advantages and disadvantages. One important advantage is that underspending implied in the hierarchies of teacher types within the public sector gets captured (further discussed in Chapter 3). The disadvantage springs from the presence of elements that are incomparable – there may be heads of expenditure that are a part of actual expenditure but are not considered in estimation of requirement. A more meaningful and accurate comparison would be along functional categories so that the sources of underspending can be pinpointed. The problem with such an exercise is that the

27. The methodology for population projection is discussed in chapter 5 in the context of projection of resource requirements.

28. Refer to NIPFP studies on Financing Human Development in Indian states (Sen, et al, 2009).

budgetary classification is scheme-wise and to classify it functionally is very difficult, and involves a whole lot of subjective judgments. While we have a functional bifurcation of the normative requirement, we don't have it for actual budgetary spending.

Another point relates to the use of actual enrolments as the basis for calculation of resource requirement for several sub-heads. We have used actual enrolments of CWSNs, children in residential schools, children in public schools, children enrolled under 25 percent quota in private schools, etc. in estimation. This has been done so as to derive the normative based on realities of the day. It may be argued, with good reason, that a normative based on equitable financing should cover a larger cohort of students under the public system than what exists now. An alternative scenario has been considered with a larger coverage under public sector in Chapter 4.

The resource requirement estimation is computed at state level (Chapter 3), rather than only at the national level (Chapter 4). This is important as states are the most important unit responsible for the implementation of RTE and there is great deal of variation in requirements, composition of costs as well the feasibility of spending across states. It is important to look at the state as a unit, so as to bring up the structural bottlenecks in resource adequacy. The approach to estimation of resource requirement reported at the state level can be disaggregated to districts. This would provide a clear blueprint of allocations required at every level. While strategic planning has to happen at the top, micro-planning is essential for successful implementation.

Finally, two caveats relating to norms. Selection of norms is a difficult task that necessarily involves subjective judgment, and any set of norms would have important omissions, or understatement or overstatement, depending on the observer's point of view.[29] We realize that more work needs to go into understanding each norm minutely, than was possible here. The evolution of norms itself is an important field of study.

Also, it is important to recognize that while norm-based costing serves an indicative purpose useful for planning, these are not meant to serve as rigid guidelines for setting budget constraints especially by a higher level of government on a lower tier. Local contextual situations should determine actual financial plans to the extent possible, rather than universalistic financial norms. Equitable financing as the broad principle would take into account the diversity of contexts and provision accordingly.

29. Considerations of what is practicable and can be applied across the board versus what is desirable have to be balanced constantly. Among other things, special instructor for CWSNs is not included though we realise its centrality. Office person at the schools to take on the paper work is not considered in the main estimates.

3

State-level Estimates of Resource Requirements

Inequality in educational attainments across various states is a well-established fact, and so is the inequality in per capita spending on education. CAG (2011) noted that states per capita spending on education in Bihar is half of the all-India average, while that of Puducherry is 2.7 times the all-India level. Further, we are reminded that the average spending level in a state hides more than it reveals. Indian states have consistently positive records when it comes to the education of the privileged (the Navodayas and KVs in the public school system). In contrast, divergence across states is striking when we look at the educational participation of the poor and marginalized sections of the population. The educationally advanced states have done better to reach the bottom part of the social and economic distribution (Filmer and Pritchett, 1998 cited in Majumdar, 2017). The Right to Education essentially is the right of the last child in the social and economic order (to paraphrase Mahatma Gandhi's talisman) to a reasonable quality of education.

This chapter begins by taking stock of the physical gaps and human resource gaps in the public school system – when the gaps are evaluated for every school and every child. Thereafter it moves to an analysis of financial requirement and financial feasibility. The results are reported for general category states and special category states. From the public finance point of view, the distinction between general and special category states (SCSs) is a significant one.[30] Because of their cost disadvantage and low fiscal capacities, SCSs are eligible for greater Central assistance, apart from certain other fiscal incentives. The Central assistance has been instrumental in raising the socio-economic standards in these states.[31]

3.1 Physical Requirement

Table 3.1 presents the key variables used in estimation, state-wise. The results are reported first for the general category states followed by the special category states (SCSs) and then the two union territories (UTs), Delhi

30. The provision of Special Category status was created in the late 1960s by the Planning Commission to address the problem of underdevelopment. SCSs include all the North Eastern states and Sikkim, and the states of Himachal Pradesh, Uttarakhand and Jammu and Kashmir.

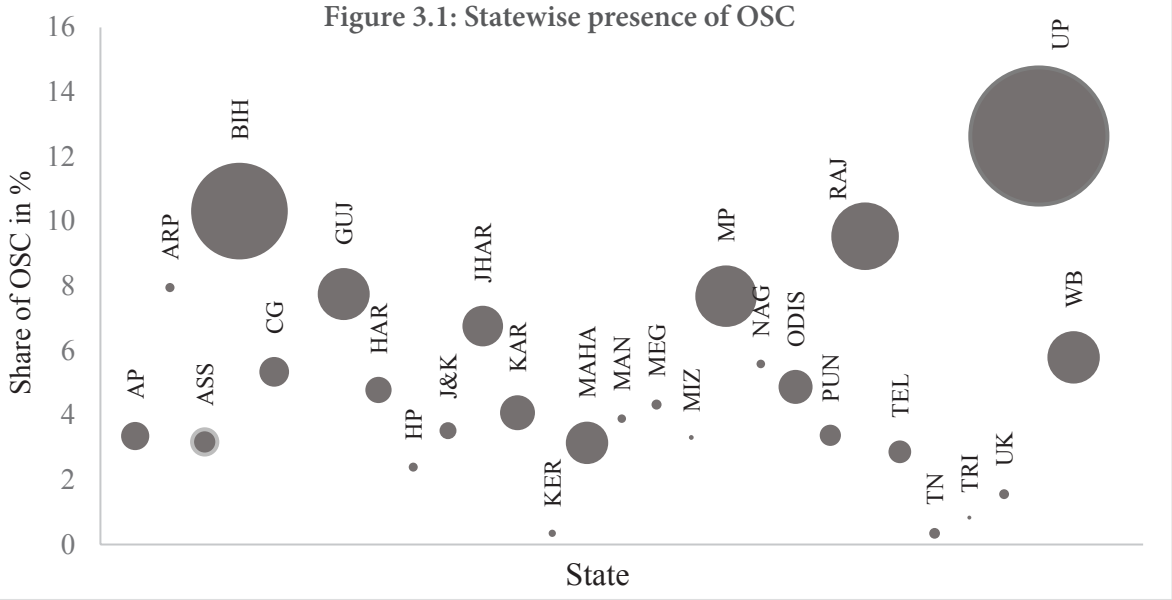
31. While many of the SCSs are now at par with the national standards or above it, particularly in terms of human development indicators, the state of Himachal Pradesh has become an exemplar in school education. Bhattacharjee (2015) notes that heavy spending on health and education by the Government in all these states was a key factor for improvement of socio-economic indicators and reduction of poverty.

and Pondicherry. Distribution of schools as per management differs widely across states. The presence of GSs (and enrolments in such schools) still dominate in states such as Bihar, West Bengal (WB), Odisha, Chhattisgarh, Jharkhand and also to some extent in Gujarat and Madhya Pradesh (MP). Amongst the SCSs, the largest share of enrolments in the GSs is witnessed in the states of Tripura, Assam, Sikkim and Arunachal Pradesh (ARP). In the more educationally developed southern states, a combination of private and private-aided schools dominates. As income and educational levels increase, affordability and demand for private schools is expected to go up. It must however be remembered that growth of the private sector in states such as Kerala and Tamil Nadu has followed a sustained period of development of public institutions. The decent standards of these public institutions would prevent an inferior private alternative. Not so in the case of UP and Rajasthan, where we observe a very high proportion of students in the private sector, comparable or even higher than the educationally developed states. The private sector growth in these states has substituted for the lack of functioning of public school system and people's trust in it. The context of today's intervention in public schools has to be understood within the larger dynamics of exit (Hill et al, 2011). A well-functioning public school system is crucial to retain children rather than leave them to sub-optimal private options.

In Table 3.1, the states have been ordered in decreasing order of the percentage of OSC in the relevant age-group. As noted in chapter 2, OSC include those who have never been enrolled and children who have dropped out of the system after enrolment. The percentage of OSC in the relevant age-group population gives a measure of exclusion, though this is not the only way in which exclusion is experienced. As per the National Family Health Survey (1992-3), around 60 million children were out of school. Over time, there has been a fall in their numbers in absolute terms. The share of OSC in relevant age-group as per the latest NSSO (2014-15) round is 7.1 percent. This amounts to roughly 15 million children.

Across states, the highest percentages of OSC are recorded in UP (13), Bihar (10), Rajasthan (10), Gujarat (8), MP (8) and Jharkhand (7). The high proportion of OSC in Gujarat is striking as Gujarat is not considered a laggard state. The presence of OSC in the relevant population is lower in SCSs on an average, though it is on the

Figure 3.1: Statewise presence of OSC



Source: NSSO 2014-15.

Note: The position of the circles indicates the percentage of children in the population in the age group 6-13+ who are out of school in each state, whereas the size of the circles shows the relative share of the State in the total pool of OSC in India.

higher side in Arunachal Pradesh and Nagaland. This indicates that the task of universalisation is far from over. The three states of UP, Bihar and Rajasthan together account for 60 percent of the total OSC in the country, pointing to the regional dimensions of the problem. The picture on out of school children is summarized in Figure. 3.1.

Table 3.1: Schooling structure and physical & human resource requirements for Elementary Education (EE) (General category states)

	UP	BIH	RAJ	GUJ	MP	JHAR	WB
SCHOOL							
GS as percent of total schools	65.7	90.2	65.4	76.6	80.1	85.2	88.7
ASs as percent of total Schools	3.3	0.2	0.0	1.8	0.6	2.4	0.3
ENROLMENT							
Enrolment in GSs as percent of total	45.4	91.8	50.4	63.5	61.7	72.0	86.4
Enrolment in ASs as percent of total	6.0	0.3	0.0	2.7	0.8	4.4	0.4
State share in total Enrolment	14.3	16.5	4.8	4.6	6.1	3.8	8.6
OUT of SCHOOL CHILDREN							
OSC as a percentage of population	12.6	10.3	9.5	7.7	7.7	6.8	5.8
State share in total OSC	35.3	17.5	8.6	5.1	7.1	3.1	5.2
CHILDREN WITH SPECIAL NEEDS							
CWSN in school as percent of enrolment in GS&A	1.2	0.9	1.5	1.3	1.5	1.3	1.4
RESIDENTIAL SCHOOL							
Enrolment in Residential Schools as percent of enrolment in GS&A	2.8	1.0	0.8	2.3	2.4	1.2	2.8
INFRASTRUCTURE in GS							
Additional classrooms required as a percent of existing classrooms in GSs	8.1	75.1	15.6	10.9	9.1	12.4	25.5
Additional HT room required as a percent of existing	13.0	232.1	68.2	276.4	127.4	80.4	357.3
Surplus Classroom as percent of existing classrooms in GSs	22.6	5.9	15.4	12.6	21.5	18.9	16.3
Classrooms requiring repairs as percent of existing classrooms in GS	21.5	22.2	25.6	16.8	23.3	12.8	23.0
TEACHERS in GS&A*							
Overall Deficit Teachers as percent of Required teacher in GS&A	30.0	52.8	22.2	21.9	27.0	43.6	18.1

Source: DISE 2015-16 and for estimates of OSC, NSSO 2014.
Note: States are ordered based on OSC as percent of population.
*Refers to teacher requirement for the enrolled children;
** All-India includes (i) 5 other UTs not reported in the table; (ii) Central Government schools.

CG	ODIS	HAR	KAR	PUN	AP	MAHA	TEL	KER	TN	GOA
87.4	84.7	65.2	68.4	67.3	73.9	64.1	70.2	27.7	64.9	60.1
0.8	7.0	1.0	9.6	1.6	3.7	20.8	1.7	42.3	14.6	29.4
73.0	79.2	43.9	50.4	44.2	55.4	36.6	44.3	21.1	40.0	16.9
1.4	4.5	1.6	11.5	3.3	3.4	38.3	2.3	41.1	20.2	65.3
2.5	4.1	1.3	4.0	1.4	2.5	9.2	1.8	1.9	4.3	0.1
5.3	4.9	4.8	4.1	3.4	3.4	3.1	2.9	0.3	0.3	0.0
1.7	2.2	1.3	2.3	0.8	1.5	3.4	1.0	0.1	0.2	0.0
2.0	1.9	1.6	1.7	4.2	2.1	2.0	2.2	4.0	2.4	2.4
4.1	9.4	0.3	1.8	0.4	5.5	4.4	9.8	0.8	1.3	1.2
11.0	21.7	8.3	9.6	9.4	15.2	10.9	13.7	4.1	8.0	12.4
120.4	202.8	76.4	198.7	86.5	494.9	55.1	328.2	57.6	175.7	377.2
16.3	11.5	25.1	16.5	16.7	13.7	8.4	16.0	30.1	15.4	13.0
24.3	27.0	21.0	25.8	16.0	27.8	17.2	30.2	25.7	14.0	20.0
8.8	22.7	8.1	31.9	12.2	11.4	25.2	16.3	0.0	13.0	19.7

Table 3.1: Schooling structure and physical & human resource requirements for Elementary Education (EE) (Special category states & UTs)

	ARP	NAG	MEG	MAN	J&K
SCHOOL					
GS as percent of total schools	84.8	73.5	58.3	67.7	81.4
ASs as percent of total Schools	1.6	0.0	27.0	11.7	0.0
ENROLMENT					
Enrolment in GSs as percent of total	69.9	46.4	48.1	36.3	53.9
Enrolment in ASs as percent of total	4.7	0.0	31.4	6.5	0.0
State share in total Enrolment	0.2	0.1	0.5	0.2	0.8
OUT of SCHOOL CHILDREN					
OSC as a percentage of population	8.0	5.6	4.3	3.9	3.5
State share in total OSC	0.2	0.1	0.2	0.1	0.5
CHILDREN WITH SPECIAL NEEDS					
CWSN in school as percent of enrolment in GS&A	2.0	2.1	0.9	2.8	2.0
RESIDENTIAL SCHOOL					
Enrolment in Residential Schools as percent of enrolment in GS&A	17.5	0.8	2.8	2.6	0.8
INFRASTRUCTURE in GS					
Additional classrooms required as a percent of existing classrooms in GSs	5.9	5.6	12.0	5.2	13.6
Additional HT room required as a percent of existing	325.7	161.2	1274.3	342.4	313.8
Surplus Classroom as percent of existing classrooms in GSs	31.5	36.3	19.5	32.9	21.5
Classrooms requiring repairs as percent of existing classrooms in GS	24.5	11.2	18.1	7.0	13.9
TEACHERS in GS&A*					
Overall Deficit Teachers as percent of Required teacher in GS&A	0.0	0.0	2.2	0.0	0.0

Source: DISE 2015-16 and for estimates of OSC, NSSO 2014.
Note: States are ordered based on OSC as percent of population.
*Refers to teacher requirement for the enrolled children;
** All-India includes (i) 5 other UTs not reported in the table; (ii) Central Government schools.

MIZ	ASS	HP	SIK	UK	TRI	DEL	PUD	All-India**
73.7	76.0	85.1	67.0	73.7	88.9	48.3	57.4	**73.7**
2.5	6.0	0.0	0.2	2.3	1.0	4.5	4.6	**5.1**
51.5	75.5	59.6	67.1	42.5	81.2	53.3	26.7	**59.3**
3.5	5.1	0.0	1.9	4.0	2.8	3.4	12.7	**7.8**
0.1	3.4	0.4	0.1	0.6	0.4	1.3	0.1	
3.3	3.2	2.4	2.2	1.6	0.8	5.2	1.0	**7.1**
0.0	1.2	0.2	0.0	0.2	0.0	0.9	0.0	
5.5	1.6	1.6	1.1	1.0	0.7	0.8	1.2	**1.6**
0.3	0.2	0.7	5.0	1.5	1.1	0.0	2.7	**2.7**
10.7	20.5	3.7	1.2	6.1	17.4	25.1	2.6	**18.0**
322.4	434.9	148.2	95.7	41.3	230.1	3.8	46.9	**116.8**
26.5	15.3	27.5	42.1	14.9	24.2	12.5	30.7	**16.6**
3.6	33.2	26.3	30.0	42.0	33.8	6.4	6.6	**22.2**
0.0	0.0	0.0	0.0	16.3	0.0	11.9	0.0	**25.1**

Table 3.2: Composition of Out of school children

	Sector		Gender		Social Group				Occupation Type				Religion		
Categories	Rural	Urban	Male	Female	ST	SC	OBC	Others	Self-employed	Regular wage	Casual Labour	Others	Hindu	Muslim	Others
Distribution of OSC	80	20	48	52	16	23	46	16	46	11	40	4	68	31	2
Share in population	75	25	54	46	11	20	45	24	52	16	28	4	79	17	4

Source: NSSO 2014-15.

Social composition of OSC reflects that a disproportionate share of those who are out of school are in rural areas and belong to marginalized communities, SC and ST, and are girl children (Table 3.2). A large percentage of OSC come from households engaged in casual labor. As per religious classification, 31 percent of OSC are Muslims. Juxtaposing with the regional concentrations, these social characteristics bring home the severity of the problem and the challenges of inclusion for vast numbers of children.

RTE Act pays special attention to the rights of CWSNs and children from marginalized communities. Purely based on enrolment figures, the educationally advanced states have a better representation of CWSNs among the students enrolled in government, including aided schools. Whereas CWSNs comprise about 1 percent of enrolments in public schools of Bihar and UP, the ratio is 4 percent in Kerala. Thus, both in respect to OSC and CWSNs, the educationally laggard states (arrayed to the left of Table 3.1) have to put in a lot more effort. It may be noted that CWSNs would comprise a significant proportion of OSC. Decline in OSC would be reflected in greater presence of CWSNs in the schools and vice-versa.

Provision of residential facilities at the elementary stage is limited to some states which have invested in residential schools for students from marginalized groups mainly located in remote areas. Telangana, Odisha, Andhra Pradesh (AP), Maharashtra, Chhattisgarh, Arunachal Pradesh and Sikkim have substantial enrolments in residential facilities for elementary school students.

Coming to the existing levels of infrastructure, one finds that the deficit in classrooms coexist with surplus in classrooms in all the states.

The present narrative on low enrolments in public schools and empty classrooms therefore presents a partial picture. The deficit in classrooms ranges between a small 4 percent of existing classrooms in Kerala to massive gaps in the Eastern region of the country. Bihar has a huge shortfall of classrooms, with the deficit as much as 75 percent of the existing classrooms in the GSs. WB, Odisha and Assam are the next three states with substantial gaps in classrooms. The other major region with classroom deficits is Delhi, where the gap is equal to about a fourth of the existing classrooms. Expansion in infrastructure has not kept pace with the demands for schooling in this fast-growing urban state. Deficit in head teacher (HT) room as share of existing facility is more than 100 percent in majority states.

Note that infrastructure gap (and teacher deficit) reported in this table relate only to in-school children. This has been done so as to measure the present capacity to cater to the present set of children who are in school. The gap, of course, is much larger when the requirement for population of OSC is included. For Bihar, the requirement of classroom increases to 95 percent of existing classrooms, when one takes into account the infrastructure needed to accommodate OSC.

Shortage of School Buildings in Bihar

DISE, 2015-16 data shows that Bihar has an alarming gap in classrooms. Around 10 percent of the government schools in Bihar report an absence of school building and in 1 percent of the government schools, buildings are under construction. Number of students enrolled in such schools (with no classrooms) is 11.3 lakhs which is 5 percent of the total enrolment implying that around 11 lakhs children have to sit in open space to attend classes which automatically increases the number of absentees. 80 percent of such schools were established before 2010. Significant time has elapsed since their inception. There are 3.1 percent primary schools (PS) with only a single classroom against the minimum norm of two classrooms per primary schools. The larger share of classroom deficit, however, seems to be concentrated at upper primary schools (UPSs). The average size of an UPS is 466 whereas the average size of a PS is 167. Among the elementary schools, 58 percent are only primary schools, whereas 41 percent are schools having both primary and upper primary section, and only 1 percent schools are only UPSs. Both access to upper primary schools and a reasonable class size remains a challenge in Bihar.

Even where school buildings exist, all may not be well. Many of the existing classrooms require repair, minor or major. And the need is ubiquitous. Uttarakhand, Tripura, Assam, Sikkim, Himachal Pradesh – all SCSs – have a high percentage of classrooms needing repair. As for the rest, the requirement is only a trifle smaller. Across India, more than one-fifth of the classrooms need repair. In its audit report, CAG (2017) draws attention to inadequacies of infrastructure posing risk to students and also failing to provide conducive environment for providing quality education. It has identified school buildings having major cracks in beams, leaking roofs, buildings in dilapidated and unhygienic condition, temporary structures, school buildings without fitness certificates, unauthorized occupation, such as the space being used as cattle shed, etc.

Gaps abound in other infrastructure (Appendix Table A3.1). Playgrounds, an integral part of growing up and learning in schools, are absent for 45 percent of the GSs across India. Southern states are hardly distinguishable from the Northern states in this respect. Punjab performs the best with a deficit of only 1 percent for playgrounds. There are huge gaps in library facilities in Bihar, Rajasthan, UP, WB and several of the SCSs. Trends in boundary walls and ramps, as also kitchen shed reflect significant gaps that need to be bridged. Ramps are yet to become the practiced norm with deficit ranging between 3 percent in Gujarat to 68 percent in AP, among the general category states. 44 percent of government schools across the country do not have electricity connection. A small percentage of schools in most states have computer. Only Kerala, Delhi, Gujarat and TN & Maharashtra, to some extent, buck the trend. The gap in infrastructure facilities is least for facility of drinking water and separate toilets for boys and girls. And yet many states – several of the SCSs besides Bihar, Jharkhand, MP, Rajasthan – lag behind even in these essential aspects.

3.2 On Teachers

The issue of teacher appointments, recruitments and their postings has been much more intractable than the progress on infrastructure needs. The last row in Table 3.1 gives an overall measure of teacher deficit across states. State-wise figures show massive teacher deficits as a proportion of required teachers in Bihar (53 percent) and Jharkhand (44 percent). But a whole lot of other states, including some of the southern states, also have significant teacher deficits. Amongst the general category states, only Kerala doesn't have a positive teacher deficit. Special category states stand out. All of them, except UK, and Meghalaya to a small extent, have adequate number of teachers as per the minimum RTE norm. This is a significant

point and correlates to the better performance on social indicators in most of the SCSs noted above. In direct contrast, the north Indian states with massive teacher deficit are also states with higher percentages of OSC. As noted in Chapter 1, improvements in PTR can have a direct impact on school life expectancy of children and vice versa.

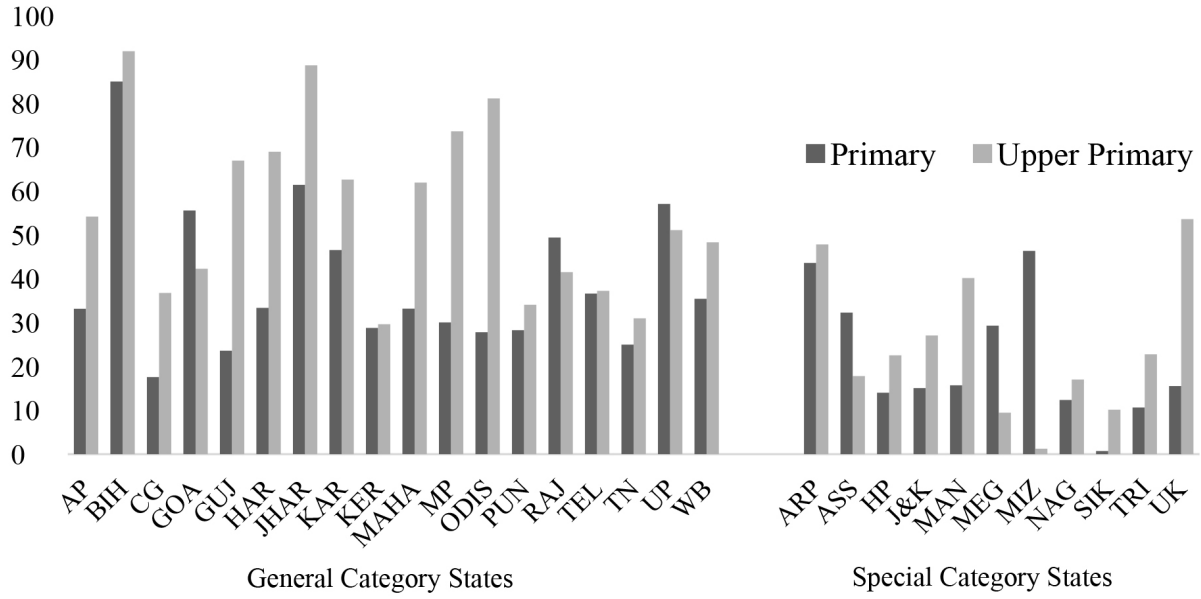
Deficits by Teacher Types: In Appendix Table A3.2, the deficits for the four main categories of teachers for each state are presented. The first two columns refer to full-time teachers for PS and UPS, respectively, and the next two columns report the deficit in head teachers and part-time instructors. There are deficits in PS teachers in all the general category states except Kerala. Besides the gap in PS and UPS teachers, there are significant gaps in head teachers. Schools in Bihar and Jharkhand have a deficit of 93 percent and 85 percent of required head teachers, which means not only all the administrative functions must be performed by other teachers, but schools lack leadership and direction. To the extent, head teacher provides the first level of monitoring and supervision as well as necessary support, a lot is at stake. Three part-time instructors are a mandatory requirement for UPS with enrolment exceeding 100 students. Most states have not invested in part-time instructors for physical education, work education and art/music.[32] Mizoram and Manipur are the two exceptions where 100 percent requirement for part-time instructors are met, whereas TN and UP are meeting 40–50 percent of the required part-time instructors. Despite the clear requirement in RTE Act, part-time instructors have not become a norm in practice.

Teacher Deficits across Schools: Teacher deficit reported in Table 3.1 is obtained by netting out existing teachers from total teachers required in the state. What is reported is an overall deficit, and not deficits in individual schools/teacher types. It presumes that teachers can be transferred from one school/area to another school/area. In practice, teacher redeployment is a real challenge in most states of India.[33] Section 25 (I) of the RTE Act, states that "within six months from the date of commencement of this Act, the appropriate Government and the local authority shall ensure that the Pupil-Teacher Ratio as specified in the Schedule, is maintained in each school." Figure 3.2 reveals that this requirement is not being met (also see Appendix Table A3.3). Teacher distribution reflects the unequal spread of teachers across schools, with deficits coexisting with surpluses in huge measure. Even in states such as Kerala, there are a significant number of schools (29-30 percent) that do not have the requisite number of teachers as per RTE norms. That is, even in states where the net deficit is negligible, there exists a very significant percentage of schools with deficit teachers. The problem of schools with deficit teachers gets more acute at the UPS level. Unless teachers are redeployed in necessary measure – the normative resource calculations based on teacher deficit would prove inadequate. In other words, the rigidities in the system would be another important parameter that would affect teacher requirement.

32. It is possible that some states, particularly the ones with composite schools, have full-time teachers for some of the activities.

33. The political economy of teacher postings is discussed in Chapter 5.

Figure 3.2: Percentage of schools with deficit teachers



Source: DISE 2015-16.

Whither teacher norms? The Madhya Pradesh case

As per RTE, a minimum of 3 teachers is required for every UPS, with each having responsibility for languages, Math-Science and Social Science, respectively. This requirement of RTE is necessary for curricular balance and matching of teacher proficiency with the task of teaching-learning. Majority of the UPSs in MP defy this norm in practice; 52 percent of the GS&A in MP do not have the minimum requirement of three teachers for UPS. And, another 24 percent have exactly three teachers (Figure 3.3). We also find that for all those GS&As with at least three teachers or more at UPS, 46 percent do not have a Math or Science teacher, while 49 percent do not have a Social Science teacher.[34] In a situation where full-time teacher positions are not being filled, schools in MP are not even thinking about entitlements such as part-time teachers.[35]

In Figure 3.3, the average (median) number of teachers in GS&A at the primary level for MP is two, which is the bare minimum laid down by the RTE norm. If the requirement were to be set at a more adequate norm of one teacher per grade 1-5, only eight percent of primary schools in MP would satisfy it.

Furthermore, the gaps that we see are not randomly distributed within a state. There is a systematic regional variation that mirrors the socio-economic conditions of its people. A comparison of distribution of PTR in two districts of Madhya Pradesh – Singrauli and Indore – underlines the well-known fact of unequal positions of districts within states (Figure 3.4). Singrauli is one of the

34. This calculation is based on DISE, 2015-16 individual teacher's information and the main two subjects taught by them.

35. The persistent vacancies and lack of rational deployment of teachers is reported in CAG (2017). In test checked districts of MP, the audit found significant numbers of schools without teachers, single teachers or two teachers against the norm of three. Also see, "41,000 teacher posts vacant in 1.23 lakh govt schools in MP", Divya Raje Bhonsale, Hindustan Times, Nov 16, 2016.

Figure 3.3: Distribution of GS&A in Madhya Pradesh by the number of teachers working (2015-16)

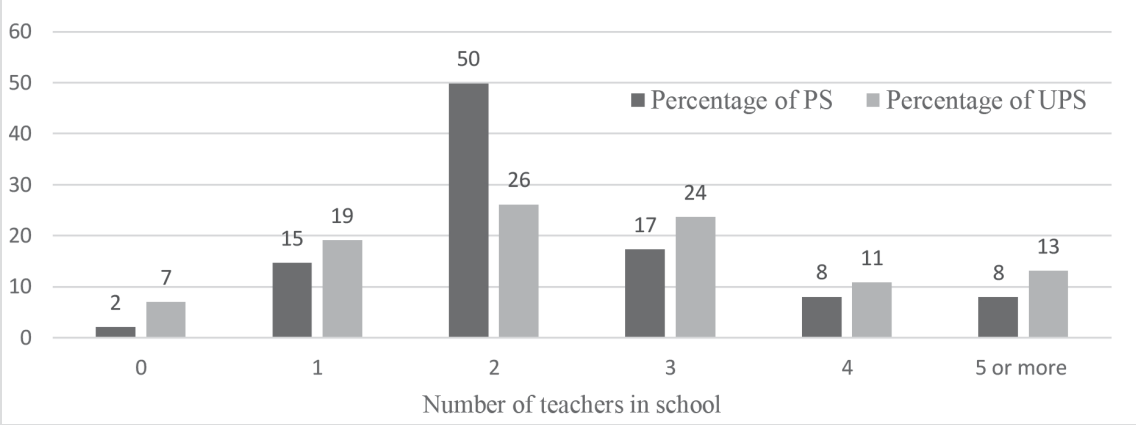
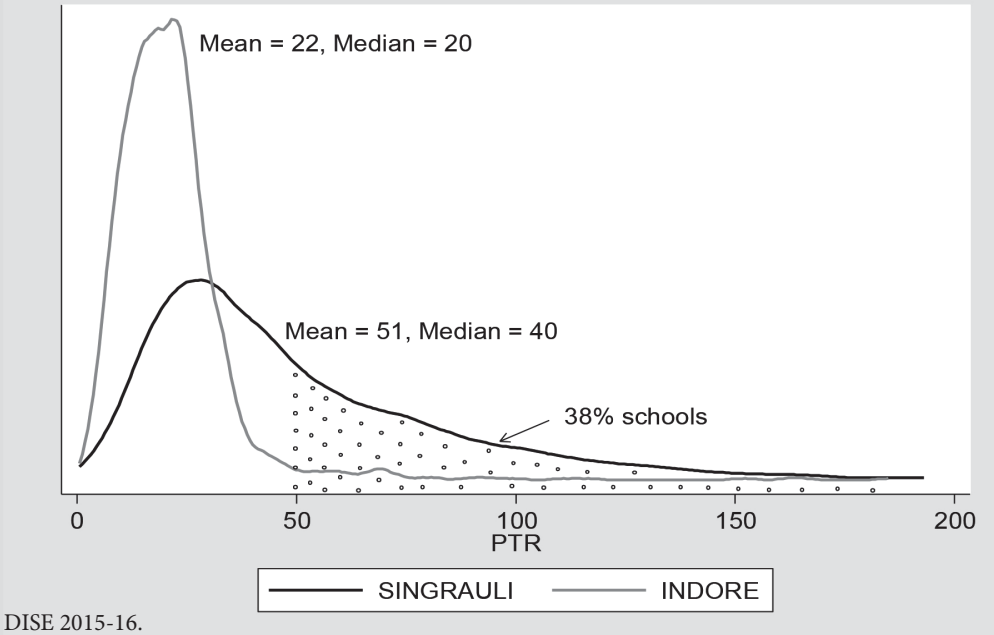


Figure 3.4: PTR distribution by elementary schools in two districts of Madhya Pradesh (2015-16)



Source: DISE 2015-16.

remote districts on the eastern flank of MP.[36] Indore is more urban and prosperous. In Indore, the PTR distribution in GS&A has a mean value of 22 and a median value of 20. In Singrauli, the median PTR in elementary schools is 40, the mean PTR is 51. 38 percent of the schools, covering 53 percent of the total elementary enrolment in GS&A in Singrauli, have a PTR above 50. It shows how in marginal areas, schools are more starved of teachers. These impoverished schools located in rural backward regions with low literacy rates serve deprived children who actually need more time and attention from the teacher, since they have no parental support at home (Rampal,1997). Clearly, redeployment from urban to rural areas has not happened. This would be true of many other regions of the country.

36. Literacy rate is 60 percent in Singrauli. STs (33 percent) and SCs (13 percent) comprise a significant percent of the population of this essentially rural district (urban population 19 percent), rich in natural resources (District Census Handbook, 2011). Indore marks a contrast with higher literacy rate (81 percent) and urban population (74 percent), and lower presence of marginalized communities (SC and ST population, 17 and 7 percent respectively).

Beyond the availability of teachers, how well children learn depends among other things on teachers' skill sets and depth of knowledge. Without ensuring teachers in adequate numbers and of a certain quality everywhere, it is fruitless to talk about quality. Teacher professionals preferably should have the capacity to cope with multigrade situations, diverse entry levels, and diverse language backgrounds (Batra, 2017). This requires skilled and sensitive teachers, which in turn calls for thorough training, both pre-service and in-service. In contrast, teachers without requisite professional qualification (D.Ed, B.Ed) constitute a significant proportion of the existing teacher workforce. At the all-India level, untrained teachers are 16 percent, i.e. roughly one out of six teachers lack the requisite professional qualification (Refer to Appendix Table A3.2). Among the general category states, the laggard states of Bihar, WB, UP, Jharkhand, Odisha and Chhattisgarh account for the most untrained teachers. Untrained teacher percentage is also surprisingly high in all the SCSs, barring three states of HP, UK and Mizoram.

The lack of adequate institutional capacity to train teachers is one of the key reasons for the high presence of untrained teachers and teacher shortages. Of course, untrained teachers mean lower salaries and lower bargaining power of teachers, a point we shall take up in section 3.4. Batra (2017) points out that 556 DIETs have 37,000 seats which is 6 percent of the total number of seats in all teacher training institutes (5,70,000). The NCTE has approved 1,90,000 elementary level seats. Of these, a mere one-fifth are in DIETs. This implies that mushrooming sub-standard teacher training institutes are expected to fill unfilled demand of majority 79 percent elementary school teachers. The existing DIETs on the other hand are inadequately staffed, which prevents them from performing their roles well (Appendix Table A3.2). The extent of gaps in SCERT on the top and BRCs at the block level is even more disconcerting. "Scaling institutional capacity for pre-service teacher education is a huge task which if neglected further is bound to magnify challenges of UEE, making it that much more difficult to achieve even a semblance of quality education for the growing youth of India" warns Batra (2017, p.137).

A stock-taking of physical and human resource requirement as per RTE norm indicates substantial infrastructural gaps and gaps in human resources. We have focused on a few important indicators, enough to challenge the view that input requirements have largely been met.[37] Inequality of provisions across states and across regions within states comes out starkly. It is surprising that such deficits can continue for years even though we are dealing with mandatory entitlements and not welfare provisions.

3.3 Financial Requirements

Estimation of financial requirement aggregates the various gaps in physical infrastructure and total requirement of human and other resources into a set of quantifiable monetary estimates, after applying the appropriate unit costs. The steps involved in translating the physical requirements into financial estimates have been outlined in Chapter 2.

Table 3.3 presents the financial estimates of resource requirements for EE for every state; these estimates reflect various dimensions of the resource adequacy question and form the core results of this study. Column 1 presents the total requirement in absolute terms, which is the normative estimate. UP and then Bihar have the highest total requirement in absolute terms, reflecting the large size of the states, demographics and the wide gaps in existing infrastructure. Total requirement is around Rs 56,000 crores in UP and Rs 51,000 crores in Bihar in 2015-16. Maharashtra, West Bengal, MP and Rajasthan are the next few states with high total requirement. At the other extreme, the state of

37. For a stocktaking on implementation of RTE refer to performance audits of RTE by CAG and Jha and Parvati (2014). Annual Status of Education Report provides performance on the two different grants and MDMs.

Goa has a total requirement of less than Rs 400 crores, lower than all the SCSs. Column 2 gives the composition of total requirement in terms of recurring cost and the rest.[38] Per student required recurring cost is presented in Column 3. The financial gap expressed as a ratio between actual expenditure and total requirement is given in Column 4. The variables in the next three columns (5 to 7) reflect the feasibility of government bearing the required costs (vis-à-vis the overall state earnings and the government's revenue receipts). The last column gives a sense of priority accorded by individual states to EE. The states in Table 3.3 have been ordered as per Column (6), additional requirement to GSDP of the states, starting with the state with the highest additional requirement to GSDP. The following few sections elaborate on the financial estimates of Table 3.3.

3.3.1 Composition of Required Resources

About 85 percent of the total resource requirements on an average, across states has to be on account of recurrent heads (column 2, Table 3.3). The share is lower where high infrastructure deficits exist (eg. Bihar, West Bengal, etc.). Higher cost per unit associated with infrastructure provision in SCSs is another reason for lower share of recurrent costs in these states. Once the infrastructure deficits are met, required expenditure on EE will comprise majorly of recurring costs.

It is often pointed out that teacher salaries account for the overwhelming share of education expenditure, ignoring other important heads. Committed expenditure of the government, salaries being one of them, do crowd out other expenditure heads. This is particularly so for fiscally constrained situations, where there is a cap on borrowing and revenue growth is limited, forcing cuts in expenditure. A normative plan, therefore, is of utmost importance to take care of the different heads which need to work in complementarity.

Figure 3.5 presents the required cost composition of schooling in terms of teacher versus non-teacher costs, for select states. This is the normative estimate and should not be confused with the actual composition of expenditure in these states. We see that there needs to be significant allocation of funds towards non-teacher heads, along with teacher costs, where teacher costs include teachers' salary and cost on teachers' professional development. On an average, around 40 percent of the cost needs to be on non-teacher heads (median state of Chhattisgarh needs to incur 41 percent of its costs on non-teacher heads versus 59 percent on teachers). The share of non-teacher cost is higher in states where financing for infrastructure gaps, both for children who are in school and those who are still outside the system, take up a substantial share in the total (non-teacher costs: Bihar 52 percent, Uttar Pradesh 50 percent, Rajasthan 47 percent). Comparing across states we see that the structure of the financial requirement evolves along the road to universalisation as infrastructure gaps are met and OSC are integrated into the school system. In an educationally advanced state, the desired composition of teacher to non-teacher cost is 72:28 (Kerala).

38. The terms cost and requirement have been used interchangeably in the report. Total requirement is synonymous with total cost. Likewise, additional requirement is same as additional cost.

Table 3.3: Total requirement vis-à-vis actual expenditure

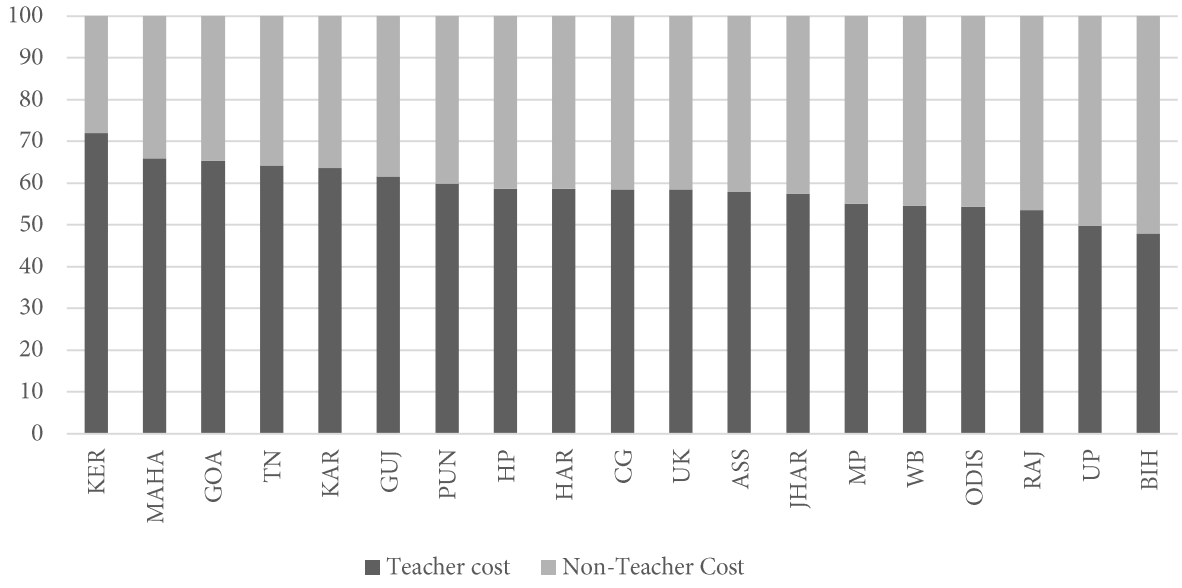
Name of the State	Total Requirement (Rs Crores)	Recurrent Cost to Total Requirement (percent)	Per Student Required Recurrent Cost (Rs)	Actual Expenditure to Total Requirement (percent)	Total Requirement to GSDP (percent)	Additional Requirement to GSDP (percent)	Additional Requirement to revenue receipt (percent)	Actual Expenditure to Revenue Receipts (percent)
	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)
GENERAL CATEGORY STATES								
BIH	51345	74.8	16720	25.1	13.5	10.1	40.0	13.4
JHAR	12040	88.0	20270	37.9	5.2	3.2	18.4	11.2
ODIS	16606	84.5	25655	38.5	4.9	3.0	14.8	9.3
MP	26452	85.9	26028	45.7	4.9	2.6	13.6	11.4
WB	28516	82.2	20158	45.6	3.6	1.9	14.1	11.9
CG	10220	87.6	25826	52.3	3.9	1.9	10.6	11.6
UP	56166	87.7	22985	64.2	5.0	1.8	8.9	15.9
RAJ	22071	83.8	26869	49.8	3.3	1.6	11.0	11.0
AP	11383	84.4	27985	69.8	1.9	0.6	3.9	9.0
TEL	7758	85.4	27459	65.9	1.4	0.5	3.5	6.7
KAR	15658	90.7	26290	70.2	1.5	0.5	3.9	9.3
MAHA	29612	94.3	22660	74.3	1.5	0.4	4.1	11.9
GUJ	16656	90.8	23501	87.7	1.6	0.2	2.1	15.0
TN	13071	92.6	21356	90.2	1.1	0.1	1.0	9.1
GOA*	389	93.5	22468	163.9	0.7	0.0	0.0	7.5
HAR	4613	92.5	23367	118.9	1.0	0.0	0.0	11.5
KER	5522	98.0	21503	101.0	1.0	0.0	0.0	8.1
PUN*	4985	91.8	23410	102.5	1.3	0.0	0.0	12.3
SPECIAL CATEGORY STATES								
MEG	2810	68.3	30316	25	10.9	8	29.8	10.1
MAN	1342	74.0	43738	40	7	4	9.7	6.5
ASS	14656	79.2	25830	41	6	3.8	20	14.1
TRI	1969	78.1	31854	38	5.7	3.5	12.9	8.0
J&K	6245	69.5	41364	53	5	2	10.6	12.0
NAG	982	82.4	46599	61	5	1.9	4.8	7.5
ARP	1193	71.9	33629	70.8	5.9	1.7	3	8.0
MIZ	738	86.2	52384	70.3	4.8	1.4	3.3	7.8
SIK	486	90.2	59018	72.8	2.9	0.8	3.5	9.4
UK	3209	86.3	33512	71.8	1.8	0.5	4.3	10.8
HP	2748	84.3	39837	80.5	2.4	0.5	2.3	9.4
UNION TERRITORIES								
DEL*	3114	90.8	15690	135.8	0.6	0.0	-	-
PUD	219	96.9	31211	107.5	0.9	0.0	-	-
INDIA	377839	85	23198	57.8	2.7	1.2	-	-

Source: DISE 2015-16 and NSSO 2014-15; Actual Expenditure: Finance Accounts and State Budgets; GSDP: CSO.

Note: States are ordered in descending order based on additional requirement as percent of GSDP

* For these States, actual expenditure on EE has been obtained from per student expenditure on school education after multiplying it with elementary enrolment in GS&A (for details refer to Chapter 2)

Figure 3.5: Teacher and non-teacher costs of schooling: Variation across select States (in %)



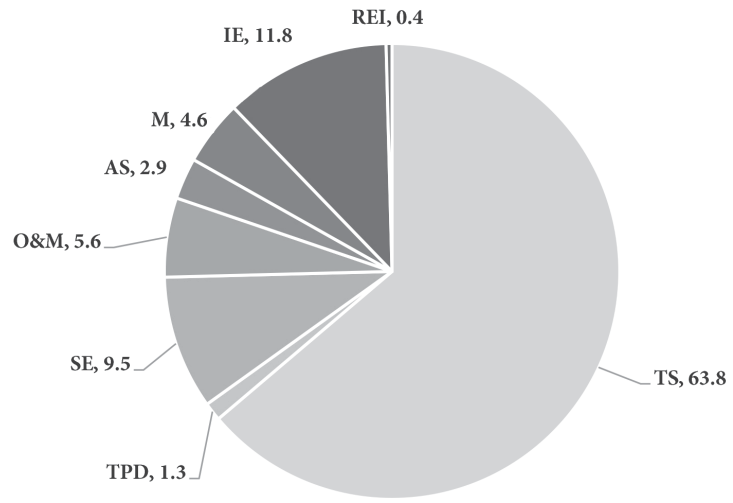
Source: DISE 2015-16.
Note: Teacher costs include teachers' salary and cost on teachers' professional development.
States have been arranged in descending order of teacher costs as percentage of the total.

The normative composition of the recurring cost for all-India by detailed sub-heads can be seen in Figure 3.6. state-wise picture is presented in Appendix Table A3.4. Recurring cost comprises of system level and school level heads. The system-level requirements are on academic support (AS) and management (M). How well the school system, including private schools, functions is determined, among other things, by the strength and quality of academic support and management. The cost of monitoring and supervision through systems of internal accountability (the education department) and external accountability (community-level organizations etc.) are part of the management cost. System level heads require adequate spending which we have normatively estimated as 7.5 percent of the recurring cost.

Rest of the components are (majorly) school-level heads. Teacher cost being the financially most bulky head represents the majority of the school level cost. It constitutes 65 percent of the total recurring cost, of which teacher salary (TS) comprises of 63.8 percent and teacher professional development through training for capacity building comprises the rest. Students' entitlements (SE) composed of mid-day meals, uniforms and textbooks account for a-tenth of the recurring cost. Operation and Maintenance constitute a significant 5.6 percent of the recurring cost and includes part-time helper(s) for water and sanitation in school, and an untied grant for school-specific needs besides grants for maintenance and school development.

Under inclusive education head, different facilities that can contribute to the inclusion of marginalized children are aggregated. It covers learning aids for children with special needs who are in school and facilities for children with severe disabilities who need home-based schooling, etc.; residential schools, especially for girls from socially disadvantaged groups in remote areas; special training for OSC so as to enable them to integrate and catch up on the learning curve. It also includes scholarships for students. The costs on inclusive education comprise around 12 percent of total recurring

Figure 3.6: Composition of recurring cost, all-India (in percent)



TS - Teacher Salary, TPD - Teacher Professional Development, SE - Students'Entitlement, O&M - Operation & Maintenance including Others, AS- Academic Support, M - Management IE - Inclusive Education (Scholarship, Residential School, Mark up cost including bridge course for OSC and facilities for Children with special needs), REI - Reimbursement

Source: DISE 2015-16.

costs. This is equivalent to per student additional cost on inclusive education of Rs 3,384 for children in the target group. Children belonging to these groups must receive more than per capita share of educational resources if equality of opportunity is to be granted.

While inclusive education head is an attempt to offset disadvantages in schooling, it is hard to say that these allocations would prove enough. What would provide a level playing field to disadvantaged groups needs further research. Betts and Roemer (2006), cited in Majumdar (2017) estimate that to equalize future earning opportunities for white and black children in the USA would involve spending 10 times as much on the education of blacks, per capita, than on whites!

How does the actual composition of spending compare with the normative estimates that we have obtained? Unfortunately, the budgetary expenditure of governments is not readily classifiable into meaningful functional categories as elaborated in Chapter 2. For individual researchers or small team of researchers to process the budgetary information, which is not standardized, requires enormous time and effort. For a study, involving all the states, it proved impossible.

CBGA (2016) has analyzed the composition of school education budget across 10 major states. The spending on teacher salary, teacher training, inspection and monitoring, incentives to children, school infrastructure and MDM is explored for 2015-16 (Budget estimate + Supplementary budget). Though not exactly comparable (our focus being limited to elementary education), a few observations from the CBGA (2016) exercise are noteworthy. It finds that spending on teacher's training is being neglected by most state governments; it varies from 0.2 percent to 0.6 percent of overall allocation. Inspection and monitoring is another component that is severely resource-starved. On the other hand, Bihar is spending around 22 percent of its school-education budget on incentives. States like Uttar Pradesh, Odisha, Madhya Pradesh and Jharkhand are also spending around 10 percent or more of their total school education budget on incentives. In comparison, Maharashtra and Karnataka spent less than 5 percent of their school-education

budget on monetary and non-monetary incentives for children.

Higher spending on incentives, at the cost of other components, is worrisome. As access improves, and more and more students are within the school system, the functionality of schools is of utmost importance. A well-functioning school is the greatest incentive and incentives cannot be a substitute for poor learning environment in schools. Normative benchmark cost composition, calibrated as per context, will be useful for balanced budgetary allocations.

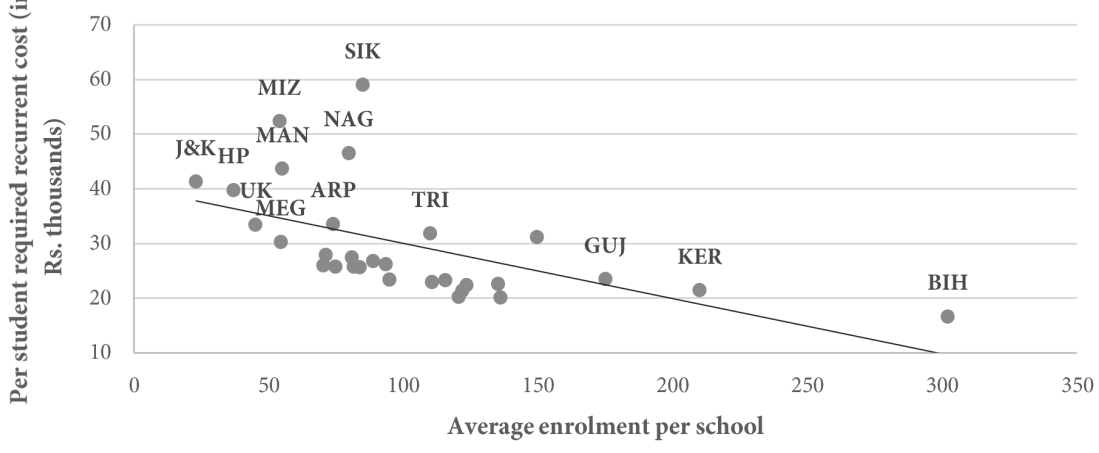
3.3.2 Per student Required Recurring Cost: Variability across States

In calculating per student requirement, recurring cost (rather than total) is the relevant variable.[39] Students here include those enrolled in GS&A and OSC who are to be absorbed in the current year. Per student required recurrent cost (PSRC) varies with the range extending from Rs 16,720 (Bihar) to Rs 27,985 (AP) among the general category states (Column 3 Table 3.3).

The large variability of PSRC across states even though we started with similar unit costs can be attributed to several factors. Teacher salary being the largest constituent of the required recurrent cost, variation in the teacher salaries per student across states accounts for the most, if not the whole, of the variation in the PSRC. Variation in the teacher salaries per student in turn can arise due to variation in the required pupil teacher ratio (RPTR). RTE Act recommends teacher requirement in each school should be based on the enrolment in the school; but RTE norm is not scale neutral. Higher the number of students, more economical is the teacher requirement per student. For example, when primary enrolment in a school is up to 120 RPTR is 30; but when primary enrolment in a school is above 200, RPTR increases from 30 to 40. In other words, the norms make an allowance for RPTR where there is high demand for schools and therefore pressure on enrolment. What is important to note is that all the states do not have uniform enrolments (Figure 3.7). Some states have preponderant presence of schools with large enrolments whereas others do not, which explains the inverse relationship between enrolment per school and PSRC to a large extent. Figure 3.8 shows the distribution of enrolments in schools for two extreme cases.

In addition, the average years of service of existing teachers and the proportion of existing to required teachers (via equation 12, Chapter 2) would bear on monthly salary of a teacher

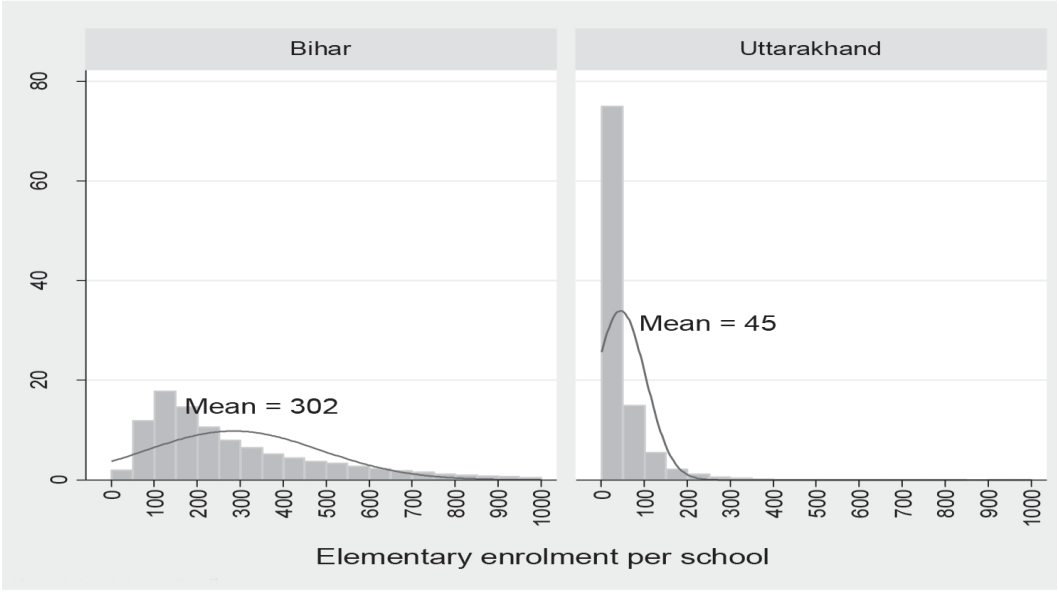
Figure 3.7: Inverse relation between per student required recurrent cost and enrolment per school



Source: DISE 2015-16.
Note: Delhi is not plotted here. Being a primarily urban center, the average enrolment per school exceeds 500.

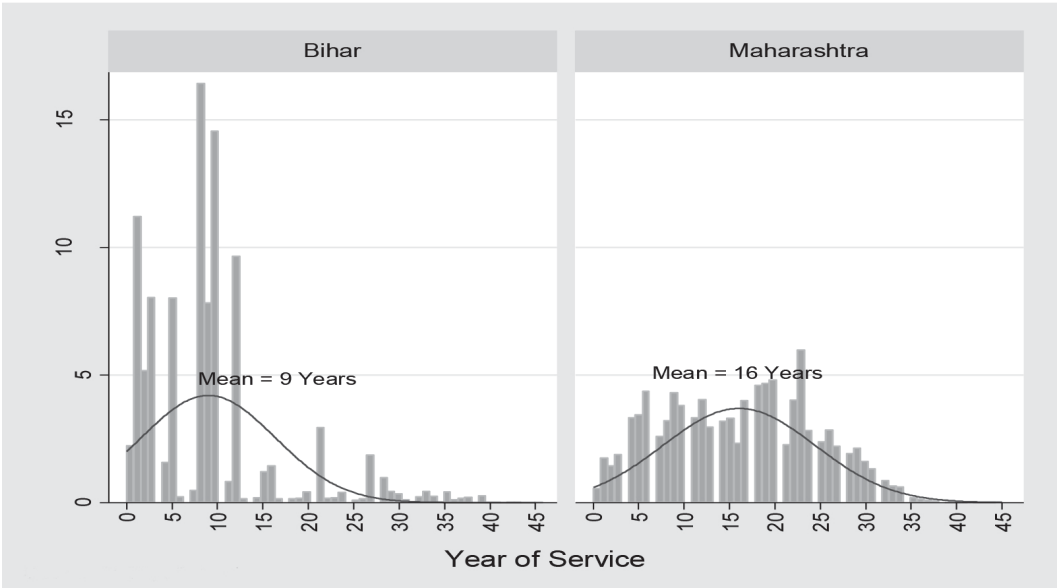
39. Since capital investment benefits generations of students and not only the currently enrolled, capital cost is not included in per student cost.

Figure 3.8: Distribution of elementary enrolment per school: Two contrasting States



Source: DISE 2015-16.

Figure 3.9: Service age distribution of teacher: Two contrasting States



Source: DISE 2015-16.

and the per student recurring cost. Again, states display specific patterns in the average years of service of existing teachers as the contrast between Bihar and Maharashtra shows (Figure 3.9). The average years of experience for teachers is 9 years in Bihar and 10 years in Delhi and UP, whereas it is 16 years in Maharashtra and Kerala and 17 years in Karnataka. Proportion of teacher deficit to required teachers is 53 percent in Bihar and 25 percent in Maharashtra. To the extent, teacher deficits and teachers with less experience dominate, there would be a downward pressure on PSRC.

In Figure 3.7, the SCSs barring Assam have low enrolments per school. Also, many of these states occupy an outlier position which warrants an explanation. Generally, the SCSs have low actual PTR signifying favorable teacher presence. In

many cases, the number of existing teachers is more than the minimum norms suggested by RTE in these states. The latter, as we have argued in the discussion on teachers, can hardly be considered sufficient, especially where the school size is small. For all such cases where actual number of teachers in a state exceeds the required teachers as per the RTE, we have assumed that the number of required teachers is same as the actual. In effect, the practice of that particular state becomes the norm. For states which do not even fulfill the minimum required teachers as per RTE Act, the norms defined in the Act guide resource requirement estimates. Since the required PTR is differently defined in these states (different from RTE), the PSRC is higher. And, many of these states occupy an outlier position.

Overall, the variation in PSRC shows that there is no single per student benchmark that can apply to all. It depends on a number of structural features. PSRC is much higher in SCSs, on an average. In Delhi and Bihar, the PSRC is lower as the school sizes are huge, indicating excess demand. As and when more infrastructure on schooling becomes available in these states and child population gets more rationally distributed across schools, the required PSRC may rise and converge towards the rest of the states. For all India, the normative PSRC is Rs 23,198.

School size and Per Student Recurrent Cost

In the recent years, a lot of attention is focused on school size and rising cost. NITI (2017) cites Kingdon (2017) to highlight the average spend per child per year at Rs 80,000 (public schools with 20 students or less enrolled) and Rs 40,800 (public schools with 50 students or less enrolled).[40] One may here like to note the contrast between our estimates and the above estimates. Our estimates take the whole spectrum of schools within a state – some of which are small, some medium, some large, some very large; overall cost per student is nowhere alarming. Whereas Kingdon's calculations pertain only to small schools and hence are partial estimates. By selectively focusing only on small schools, these voices have contributed to a climate of resignation where there is no alternative but to rely on low-cost private schools.

Small school size definitely raises costs per child besides reducing the variety of teachers available in a school. To the extent we are addressing a basic entitlement, however, higher cost cannot be an overriding concern. Access to schooling is a far more important consideration and remote areas need to be served even if these schools are not "cost efficient". Secondly, for many urban areas and now also in rural contexts where school sizes are small, it is important to recognize that small sized schools are a result of past neglect. As all field observations indicate, small schools were not always small schools. The hollowing out of public schools in the last one or two decades has much to do with proliferating private market and non-functioning of public schools. Greater neglect today would mean higher required spending per student in the future as the market demand gets further and further fragmented.

40. Kingdon, G. G. (2017). "Put the onus on teachers", Indian Express. https://indianexpress.com/article/opinion/columns/education-schools-children-board-exams-mass-cheating-put-the-onus-on-teachers-4473156/.

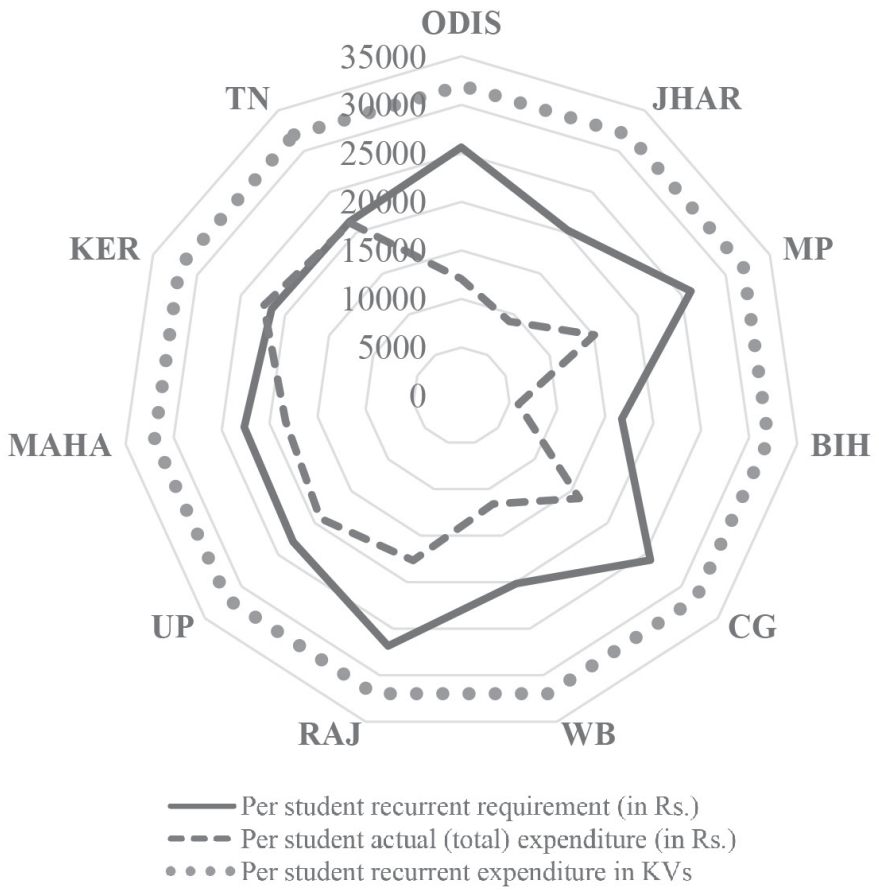
3.3.3 Comparison between Total Requirement and Actual Spending

Up till now, we have largely discussed the normative estimates of resource requirement. Next, the normative is pitted against actual expenditure. As anticipated, actual expenditure is alarmingly low in many states compared to total requirement (Col 4, Table 3.3). The ratio of actual expenditure to total requirement for Bihar is only about 25 percent. In Jharkhand, Odisha, MP and West Bengal the ratio lies between 38 and 46 percent. The deficit is only a bit less in Rajasthan and Chhattisgarh.

At the upper end, more adequate spending is observed in Kerala and TN as well as in states such as Punjab and Haryana. Within the SCSs, one again sees a lot of variation. Himachal Pradesh has the highest actual expenditure to total requirement at 81 percent while Meghalaya brings up the rear at a mere 25 percent.

The contour map (Figure 3.10) presents a comparison between per student recurrent requirement and per student actual expenditure across select states – these are a combination of educationally advanced and laggard states. It represents graphically the gaps in per student

Figure 3.10: Comparison across per Student Required and Actual Expenditure



Source: DISE 2015-16 and NSSO 2014-15;
Actual Expenditure: Finance Accounts and State Budgets; GSDP: CSO.
Note: States are ordered in descending order based on additional requirement as percent of GSDP
* For these States, actual expenditure on EE has been obtained from per student expenditure on school education after multiplying it with elementary enrolment in GS&A (for details refer to Chapter 2)

terms. The dashed line shows per student actual expenditure, whereas the bold line reflects PSRC (the normative). Each kink represents a particular state.

Per student total expenditure is reported instead of per student recurrent expenditure. This is because budgetary classification of revenue and capital expenditure do not truly reflect recurrent and capital expenditure, as many of the capital heads figure under revenue account. The third line (dotted) shows recurrent expenditure per student in Kendriya Vidyalaya in the year 2015-16. At Rs 32,698 per student in 2015-16, the dotted line lies outside the other two lines by a large margin.[41] Per student actual expenditure lies well within the per student recurring requirement. The larger the distance between the bold and dashed line at the kink points, greater is the gap. Except for Kerala and Tamil Nadu, for all other states the actual falls short of the normative. In Bihar, WB, Odisha, Jharkhand, MP, Chhattisgarh and Rajasthan the gap is really large.

It establishes the widespread phenomenon of under-spending though the per student financial requirement estimated are in a reasonable range.

3.3.4 Requirement and Feasibility

Total requirement is next normalized by gross state domestic product, GSDP (Column 5, Table 3.3). Normalization with GSDP helps factor in States' income and therefore the ability to finance their expenditure needs. It brings together the need vis-à-vis the capacity to finance the need in a single indicator.

Total requirement for EE as percentage to GSDP is exceptionally high for Bihar (13.5). The picture of high requirement coupled with low resource base could not be starker. Bihar is followed by Jharkhand (5.2), UP (5.0), MP & Odisha (4.9) with high percentage of total requirement to GSDP. Chhattisgarh, West Bengal and Rajasthan are the next three in decreasing order. Amongst the special category states, Meghalaya, tops with very high total requirement to GSDP (10.9 percent). The fragile economic base of these economies means that the total requirement to GSDP is high for a whole lot of states. As a sub-national target, 6 percent of gross income devoted to education, with approximately half allocated to EE makes little sense, therefore.[42]

Additional requirement, defined as total requirement minus actual expenditure, provides a measure of financial gap. Additional requirement when normalized by GSDP would indicate the feasibility of public funding for more adequate spending on UEE. We also know that Central transfers may compensate states for their fiscal disabilities in which case revenues could be reasonable even though incomes of states (GSDP) are low. Additional requirements therefore need to be viewed against both GSDP and the revenue receipts of states including Central transfers (Col. 6 & 7, Table 3.3).

Bihar stands out with very high additional requirements to GSDP figures (10.1 percent). Additional requirement to GSDP is 3.2 percent in Jharkhand and 3 percent in Odisha. It is 2.6 percent in MP, 1.9 percent in Chhattisgarh and West Bengal, 1.8 percent in UP and 1.6 percent in Rajasthan. If we take 1 percent of GSDP as a cutoff, eight states among the general category states require more than 1 percent of GSDP, above the present levels of spending, to meet the additional requirements for UEE. Another eight SCSs have additional requirements to GSDP exceeding 1 percent (shaded in grey in Table 3.3).

41. See http://kvsangathan.nic.in/CostOfEducationPerStudent.aspx. (accessed on 1st Dec, 2016).
Per student recurrent expenditure refers to an average expenditure per student in KV and is not restricted to elementary classes. It is computed by dividing the total recurrent expenditure at all levels in KV by total enrolments. Given the requirement of special subject teachers and other inputs in higher classes, the average per student recurrent expenditure might overstate to an extent the per student recurrent expenditure in elementary schools.

42. The same is true for the universal 20 percent total expenditure for education benchmark suggested by the draft New Education Policy (GoI, 2019)

The inability of most states to raise expenditures from the current revenues is also evident. Additional requirement to revenue receipts is a whopping 40 percent in Bihar! The state already has devoted 13 percent of its revenue receipts to EE, which shows that it is not willingness which is at fault (see Col.8, Table 3.3). For Jharkhand, the additional requirement to revenue receipts is 18 percent whereas the state has already spent 11 percent of its revenue receipts on EE in 2015-16. All the eight general category states with additional requirements to GSDP greater than 1 percent devote around 10-16 percent of its revenue receipts to financing EE. It shows the limited scope of higher fiscal space through reprioritization alone. The same is the case for the eight identified SCSs.

The above analysis brings into sharp relief the resource inadequacy that afflicts a large majority of the states. It affects states such as Bihar very severely. It also affects a whole lot of other states – from Rajasthan in the West to Assam in the East. We identified a total of 16 states where additional requirement to GSDP is higher than 1 percentage. These 16 states (8+8) cannot do it on their own. Compared to the resource requirement, their revenue base is small. What should be the necessary policy response? We shall address this question at length in Chapter 5.

3.4 Physical Gap, Financial Gap and the Policy Perspective

Before concluding this chapter, we need to highlight some trouble spots in understanding the financial gaps. We observe that for many states the physical gaps – infrastructure gaps and teacher vacancies – map on to financial gaps, but in several other contexts they do not. There are significant divergences between the extent of physical gaps and the extent of financial gaps in some states, which appears puzzling. Take the case of UP. It has the largest presence of OSC amongst Indian states and also substantial gaps

Table 3.4: Matrix of States physical and teacher gap by financial gap

		Financial Gap		
		High	**Moderate**	**Low**
Physical and Teacher Gap	**High**	BIH (1.0, 74.9); JHAR (0.47, 62.1); RAJ (0.38, 50.2); WB (0.37, 54.4); ODIS (0.36, 61.5); MP (0.35, 54.3)	UP (0.43, 35.8)	
	Moderate	CG (0.20, 47.7); ASS (0.18, 59.0)	KAR (0.33, 29.8); MAH (0.28, 25.7); TEL (0.24, 34.1); AP	GUJ (0.33, 12.3); DEL (0.32, 0.0); GOA (0.22, 0.0);
	Low	MEGH (0.15, 74.7); J&K (0.14, 62.1); TRI (0.13, 61.7); MAN (0.09, 60.0)	ARP (0.15, 29.2); MIZ (0.12, 29.7); SIK (0.04, 27.2); NAG (0.11, 39.0)	TN (0.15, 9.8); KER (0.03, 0.0); HP (0.06, 19.5); PUD (0.03, 0.0)

Note: The figures in parentheses are physical gap and financial gap, respectively, in percentages for each State.
Physical and teacher gap is measured as an index of three indicators: proportion of school children in the relevant age group 6-13+; teacher deficit and classroom deficit. The weights given to the three indicators are in the ratio 2:1:1. Higher the shortfall, higher is the physical gap. The physical and human resource gap is indexed on a scale of 0 to 1, with State with the highest gap taking the value 1.
Financial gap is measured as a 1 minus the ratio of actual spending to the normative requirement (expressed as a percentage). Lower the actual spending vis-à-vis the requirement, higher is the financial gap.
Physical and Teacher Gap: Low (≤0.15), Moderate (>0.15 & <0.35), High (≥0.35) Financial Gap: Low (≤20.0), Moderate (>20.0 & ≤40.0), High (>40.0)

in infrastructure and human resources, which would together suggest UP as one of the lowest performers on the physical front. However, the actual expenditure to total expenditure in UP is 64 percent, which doesn't reflect the severity of the physical gap. Other laggard states have much lower percentage of actual expenditure to total requirement. In marked contrast, Meghalaya has far better indicators of physical performance but has a remarkably low ratio of actual expenditure to total requirement.

A useful way to locate these oddities is to align the states in terms of physical and teacher gaps on the one hand (refer to Table 3.1) and financial gaps (as noted in the indicators of Table 3.3) on the other.

In Table 3.4, states have been classified in terms of the extent of physical and teacher gaps into three categories, low, medium and high. The indicators used to construct the physical and teacher gap index are proportion of OSC, teacher gaps and classroom gaps. A similar categorization of the states is done on the basis of financial gap represented by shortfall of the actual expenditure in 2015-16 from total estimated requirement expressed as a percentage share to total estimated requirement (for details on categorization see notes to Table 3.4).[43]

On the upper left corner are the educationally lagging states, where we witnessed high gaps in physical infrastructure, teachers in position and out of school children. These states also lead the table on financial gaps (Table 3.3). High gaps in real terms translate to high gaps in financial terms.

The educationally advanced states are located in the bottom right corner of the matrix. These include TN, Kerala, HP – states where both physical and financial gaps are small. The adequacy of expenditure is not incidental but a reflection of the social policy of these states. Dreze and Sen note that TN has some of the best public services among all Indian states, comparable with Kerala and Himachal Pradesh – the basic principle being facilities such as school education should be available to all on a non-discriminatory basis and preferably free of cost. The authors observe for TN, "These efforts have been greatly facilitated by a functioning and comparatively efficient administration. The governments involved have delivered their services on traditional lines, and there has been little use of recently favored short-cuts such as the use of para-teachers (rather than regular teachers), making conditional cash transfers, or reliance on school vouchers for private schools (rather than building GSs). The heroes in these successful efforts have been 'old-fashioned' public institutions…These traditional public institutions have left much room for private initiatives at a later stage of development, but they have laid the foundations of rapid progress in each of these cases." (Dreze and Sen, 2013; p. 79). In their resurvey of villages of Tamil Nadu, Harris, et al (2010) reach a similar conclusion.

The states of Gujarat, Delhi, Goa, Punjab and Haryana (middle-right cell) also have low financial gaps but moderate physical and teacher gap for in-school students and/or presence of OSC. In these states, financial gap understates the problem of physical gaps, or there is a disproportionately higher physical gap vis-a-vis the financial gap. Uttar Pradesh is in a similar situation, with moderate financial gap but high physical and teacher gap.

In direct contrast, there are a set of states such as Meghalaya, Tripura, Manipur and J&K (bottom-left cell) where physical and teacher gap is low but financial gap is high. Or, Assam and Chhattisgarh (middle-left cell) with moderate physical and teacher gap but high financial gap. Arunachal Pradesh, Mizoram, Nagaland and Sikkim (bottom-middle cell) are the other states where the financial gap is higher and not commensurate with the physical index status.

Searching for an explanation for the differences between the financing and physical status takes

43. The categorization of states below is not to suggest that the states in each cell of the matrix are homogenous either in terms of educational attainments or social policy on education

us to the contentious territory of public sector teacher's salary across states. Teacher's salary is the main component of EE expenditure as also in the normative estimate. In our estimates, teacher's salary has been chosen so as to allow universal application and provide a decent salary to all teachers for equal work (refer to Chapter 2, Section 2.4.2 for teacher salary assumptions).

The situation on the ground is radically different with different tenurial arrangements of teachers and widely different salary structures. Looking back, mass contractual appointment of teachers – some trained but mostly not – began in the mid to late 1990s and picked up momentum with the SSA in 2000-1. While the Centrally Sponsored Scheme for UEE boosted the demand for teachers, its norms allowed states to hire teachers on contract and keep the wage burden low. Barring a few exceptions, most states went in for contract teachers. Preponderance of contract teachers has meant a downward pressure on effective teacher's salary. This to a large extent explains the disproportionately higher financial gaps compared to physical gaps that we observe for many of the states in Table 3.4. Compared to the pay scales that we have chosen applicable to all teachers, the effective salary per teacher in states, particularly along the states in left column, is much lower. Roy Chowdhury (2017) reports that over a quarter of teaching staff in 11 states and UTs are contractual. 59 percent of the teachers in Jharkhand are contractual teachers and paid Rs 6,500-7,000 a month. In Bihar their actual proportion is masked. Placed in a quasi-permanent group, Bihar's Niyojit Shikshaks are counted as regular employees, even though their salaries are much lower than other teachers. In Chhattisgarh, teachers point out that the nomenclature has changed over time from Samvida Shikshak to Shiksha Karmis and now Panchayat Shikshaks, though they still continue to count themselves as para teachers. The regular cadre is under the Education Department or Tribal Welfare Department, whereas Shiksha Karmis are recruited by the Panchayats (elementary teachers by Block Panchayat and Secondary school teachers by the district panchayats). In Meghalaya, majority of the teachers are contract teachers and drawing a salary close to Rs 9,000 and the share of untrained teachers is a whopping 71 percent! As already observed, a very large proportion of teachers in the SCSs do not have the required professional qualification and have been appointed at a very low salary.

Contract Teachers: Expectation versus Reality

Several considerations have informed the contract teacher policies followed with great confidence across many Indian states over the last three decades. The expectation was that the teachers on contract would be more responsible towards their obligations. These teachers appointed by Panchayat Bodies would make these institutions take a deeper interest in the running of the school & accompanying supervision. Locally appointed teachers would be more responsible & less likely to be absent. And, of course, per unit cost of a para teacher/ contract teacher would be a fraction of the cost of a regular teacher.

That the experiment with contract teachers has not really conformed to the expected line of reasoning is now well-recognized. Beteille and Ramachandran (2016) write, "Rajasthan and Madhya Pradesh – two of the earliest adopters of contract teachers – have either reversed or significantly modified their policy of hiring teachers on contract. What is effective on paper or in controlled trials has proved difficult to manage in real life. From a policy perspective it is crucial to understand what went wrong, and why some proposals simply did not work as envisioned, when the system adopted them in a large-scale manner."

When we expect teachers on contract to be more responsive towards their work, this is simply the extension of the 'waiting period' phenomenon. It is similar to a long extended probation. Probationers are on their best behavior and don't wish to take any risk before confirmation of service. Teachers on contract consider themselves as future government employees with an extended waiting period. This has been the history. However, in the current phase of recruitment, there was no clarity or assurance as to how long would be the waiting period. With continuing uncertainty, teacher associations were formed to demand regularization and equal terms of pay. Absence of a response from state governments were met with agitations, court cases and open repression. After many years of struggle, governments now are declaring new cadre grades with a designated waiting period as was expected earlier.

The PRI involvement in managing teachers has not served its purpose. PROBE Revisited Survey (2006) found that a majority of contract teachers were from privileged social groups. "The recruits are unlikely to be accountable to parents and children from disadvantaged families. The presumption that gram panchayats will hold them accountable on behalf of parents is often misplaced, as Panchayat leaders themselves identify more with the contract teachers than with underprivileged children."(p.111) Contract teachers appointed by the Panchayat bodies have looked at the PRIs as the 'account head' through which their salaries were routed. All directions emanate from the education department and they are expected to do the same work as other regular teachers. There's no difference in what is expected of them; only their salary scales are different. Within a school, teachers doing the same work but with varying conditions of appointment has been a source of constant ill-will and loss of mutual trust as a school team. A school simply can't be functional and work as a team given this chasm among the staff. The Panchayat leaders are either indifferent or helpless in such a situation. Those powerful among them are more interested in infrastructure outlays & midday meal budgets. Head teachers often work out some arrangements that would not upset mutual expectations. The Village Education Committees in this process become indifferent or ineffective as regards supervision. In such an atmosphere, what happens during teacher selection at the local level is the distribution of patronage, among the selection committee members, leaving aside all objective criteria. Whose candidate you are or who is backing you, becomes the unstated criterion. "Leaving the selection only to elected representatives (as has happened in the selection of para teachers in some states) is not a very good practice as elected leaders have to contend with a lot of pressure." underlines Sinha (2013:34). It was farfetched to expect that power relations would change and the marginalized communities would suddenly find a voice in this institutional setup.

It is often suggested that 'local' teachers, from the same village, would be more responsible than regular teachers. One may remind oneself here that where it has been effective, it has been through intensive mobilization of the local community by NGO members and also extended academic support to the youth so selected. This is not possible in a mass scale government effort, especially when DIETs are so weak and not able to provide academic leadership for those newly recruited.

Clearly, the appointment of contract teachers did not turn around the dysfunctional system. The moral of both teachers and school bureaucracy was worse than before. Despite these issues becoming apparent fairly soon, the system of contract teachers continued and spread. The bottom line was lower cost. These were low-paid teachers. The cost factor stood out as the real reason where cynical administrators would often say we get the same results at a lower cost. Improving functionality had been given up and long term equity had been put aside.

What explains the position of Punjab, Haryana, Delhi, Gujarat, Goa in Table 3.4? Essentially, Punjab, Haryana, Delhi, Gujarat, Goa, all economically prosperous states, have teacher pay scales higher than our normative one. Due to the higher teacher's salary in actual expenditure compared to normative, financial gaps that ought to reflect the gaps in infrastructure and teachers, etc., get masked. Another way of stating the same thing is that the financial requirement would be higher with higher teacher's salary scales. NUEPA (2016b) in a study of eight states note that while Punjab claims to follow the 5th Pay Commission, actually it pays teachers the best and the difference between the salaries of elementary and of secondary school teachers is the lowest. The state of Delhi which has significant presence of guest teachers and considerable physical gaps has nevertheless high salaries and the same is true for Haryana. Similarly, UP typifies states where contract teachers coexist with pay scales as high as KV for regular teachers. It has been our observation – and the above cited report also notes – that the pay scales of the more educationally developed states like Tamil Nadu and Karnataka are among the lowest!

The implications of high teacher's salary are several. The pressure of expenditure on teachers' salaries, a part of the committed expenditure of the government, would crowd out other essential expenditure on schooling. It could prevent the authorities from appointing teachers in requisite numbers. As a senior official in Haryana remarked on the school education budget, "The budget in itself is quite big and sufficient, but a big chunk, more than 80 percent, goes towards teachers' salaries leaving very less money for other purposes. It is due to similar reasons that the government is trying to bring down the recruitment of new teachers through better management." [44] The same news report quotes a school Principal saying, we get Rs 7,000 annually for maintenance and repair. If we paint even one room, it is not enough. In Gurgaon, almost 90 percent of the government primary and middle schools do not have sweeping or cleaning staff in the schools, which is a big problem.[45]

The issue of teacher's salary and the need for a middle path of reasonable salary for all teachers will be taken up again in the next chapter in the context of projection of medium-term financial requirement.

3.5 Summary

The present context of EE landscape in India comprises of diverse pressures, all of which point to a single solution – the need to strengthen the public school system. Firstly, more and more children are formally a part of the school system such that the system must measure up to their educational needs as per the RTE framework. As we noted in Table 3.1, the vast majority of the children in the states of Bihar, West Bengal, Odisha, Jharkhand, among others, are accessing public schools, which necessitate adequate investments for expansion and strengthening. Public school system has also to bring in its fold the OSC, whose numbers are seen to be substantial. The project of universalisation cannot be complete otherwise. Both social composition and regional concentration of OSC brings home the challenge of their inclusion. The other set of pressures relate to the challenge of exit from the public schools into private ones for want of quality in the public school system. This was seen most prominently in UP and Rajasthan, among the lagging states, where private sector provides basic education

44. "80 percent of Rs 12,400 crore education budget spent on teacher salaries", Shubhra Pant, Times of India, Dec 27, 2016. https://timesofindia.indiatimes.com/city/gurgaon/80-of-rs-12400-crore-education-budget-spent-on-teacher-salaries/articleshow/56204221.cms

45. There are other reasons why very high salaries for teachers might be undesirable. Dreze and Sen (2013) argue that while the higher pay attracts more candidates for teacher posts, it doesn't necessarily attract the person most interested in teaching. More importantly, it increases the social distance between the teachers and the community. The opposition to high teacher salary in Dreze and Sen is located within the larger critic of the government's Pay Commission.

to more than half the population. Only a strong and healthy public school system can resist the forces of exit and set a reasonable benchmark for the private sector to follow.

Against this background, this chapter presented the results of resource estimation across Indian states, in terms of physical gaps, financial gaps and then the correspondence between the two.

The first set of finding speaks of the substantial gaps in basic facilities for children who are currently in school as well as the significant numbers who are out of school. The overall perception that the required "inputs" for RTE have been met is, thus, without empirical basis. We have found substantial gaps between the normative requirement and the actual situation on infrastructure. Infrastructure deficit is particularly acute in Bihar, demanding special attention.

The situation on availability of teachers has been discussed through a variety of indicators, such as overall teacher deficits in a state, proportion of schools violating teacher norms of RTE, deficits in each teacher category type, distribution of teachers across geographic and social divisions, etc. state-wise figures show massive teacher deficits as a proportion of required teachers in a number of states. Besides, a large percentage of schools are violating the RTE norms on teacher requirements across states, even in those states that have adequate numbers in an overall sense. The highest teacher gaps are in regions where teachers are most needed, which raise serious questions on equity in provisions that the right is supposed to guarantee. A significant share of teachers is untrained. Lack of professional qualifications of teachers is in turn closely related to the deficits in institutional capacity for teacher education and training.

Turning to financial estimates, we find that the normative PSRC works out to about Rs 23,200 (all-India average). When compared to KV per student recurring expenditure being incurred by the Central government, the normative estimates of PSRC appear in a very reasonable range. Due to underlying differences in size of the schools and the mix of new to existing teachers, among other things, there is variability in normative PSRC across states. But overall, the level of PSRC is fairly reasonable. These estimates – which are representative of all schools – have implications for the "school size" debate.

Thirdly, the composition of total recurring costs (normative) emphasizes the complementarity of various inputs and the need to act on different fronts. Besides teachers' salary, we have carefully quantified the cost on operation and maintenance at the school level, student entitlements, and teacher professional development. Similarly, the components of academic support and management are the crucial system-level inputs. Another important component is the inclusive education head. It recognizes that children belonging to marginalized social groups, CWSNs and OSC must receive more than per capita share of educational resources, if equality of opportunity is to be granted. Again, across states there are significant differences in cost compositions as the initial positions vary widely.

The fourth major finding relates to the difference between normative and actual expenditure. The latter is alarmingly low in many states compared to normative total requirement. It establishes the widespread phenomenon of under-spending though the per student financial requirement estimated are in a reasonable range. Earlier studies on resource estimation have looked at the overall resource envelope and additional requirement at the aggregate level. We emphasize that the distributional questions are equally important and feasibility of additional requirement needs to be studied for each state. In several states, the revenue base is disproportionately small when compared with the resource requirement. Including many of the SCSs, we identified a total of 16 states where additional requirement to GSDP is higher than 1 percentage. Public policy has to necessarily take cognizance of the unequal positions of these states, a theme that will be the focus of Chapter 5.

Finally, we note that policies relating to educational finance cannot be looked at in isolation; inter-relations across various social policies are important. Teacher policies are central to education policy and reforms. As we saw, the patterns of spending and financial gaps have a close relationship to policies on teachers and social policies followed by the states. A financial roadmap aimed at universalisation of equitable quality should be able to address all gaps, including deficiencies and distortions in the system. Equitable finance would require addressing the distortions in teacher policies and the way these have played out on the ground.

Appendix (Chapter 3)

Table A3.1: Schools with deficit in infrastructure as percentage of existing government schools

State	Library	Toilet (Boys)	Toilet (Girls)	Drinking Water	Kitchen Shed	Boundary Wall	Ramp	Computers	Playground	Electricity
GENERAL CATEGORY STATES										
AP	2.5	0.4	0.4	6.2	35.7	48	68.3	82.3	56	5.9
BIH	31.5	11.6	10.6	6.2	30.6	49.8	32.7	97.9	68.2	67.4
CG	5	0.5	0.2	0.4	10.3	36.7	27.5	94	48.2	30
GOA	0.1	0	0	0	16.7	21.2	27.2	85.3	65.8	0.2
GUJ	1.6	0.1	0	0.1	1.4	6.7	3.3	30	27.5	0.4
HAR	0.6	0.6	0.5	0.1	11	2	27.7	72.3	18.6	1.5
JHAR	3.7	2.2	2	6.5	23.4	75.5	47.6	96.1	62.6	88.6
KAR	0.4	0.7	0.3	0	1.8	21.8	19.6	73.9	40.7	1.2
KER	0.3	0.4	0.1	0.3	2.8	7.9	15.7	1.3	43.3	0.9
MP	9.2	4.4	3.7	4.4	16.9	64.2	29.9	95.3	39.1	87.8
MAHA	2.3	1.1	0.8	0.4	6.9	22	6.6	56.9	16.2	7.9
ODIS	6.5	5.4	1.8	0.5	18.8	31.4	27.2	87.9	75.8	72.4
PUN	0.7	0.2	0.1	0	1.2	1.3	13.8	65.1	1.4	0
RAJ	26.5	0.4	0.1	4.3	13.5	19.4	42.2	81.4	58.1	58.5
TN	0.7	0	0	0	0.1	24.3	19	47.6	30.6	0.3
TEL	4.3	0	0	8.5	38	40.5	63.4	80.1	45.8	9.4
UP	22.7	0.3	0.2	1.9	12.6	35.7	17.1	93.7	31.8	52.6
WB	17.9	0.3	0.2	1.2	9.7	59.4	34.7	89.6	59.8	24.5
SPECIAL CATEGORY STATES										
ARP	79	2.8	2.3	20.3	29.1	51	74.7	83	65.1	68.8
NAG	65.9	0.1	0.1	20.9	7	33.8	66.3	72.3	61.4	58
MEG	90.3	1	2.9	37.9	6.1	86.1	48.9	93.3	67	79.9
MAN	86.2	0	0	0.1	33.4	82	47	71.2	54.5	71.8
J&K	41.6	9.2	6	9.2	22.3	75.1	77.1	92.9	73.5	79.5
MIZ	2.7	1.5	0.8	6.9	0.3	44.5	46	71.2	33.8	20.1
ASS	32.5	2.6	1.1	8.3	18.7	70.7	24	91.7	42.9	76.3
HP	2.9	0.3	0.2	0.2	2.4	29.7	16.1	83.6	16	4.2
SIK	35.1	0	0.1	2.1	1.7	73.7	86.7	50.2	35.7	20.8
UK	6.2	2.4	2.8	3.9	7.1	17.6	38.3	77.5	49	22.6
TRI	56.2	0	0	10.3	3.7	83.7	46.1	87.5	36.7	74.1
UNION TERRITORIES										
DEL	0.8	0	0	0	-	0.1	11.9	22.4	14.6	0
PUD	0.2	0	0	0	0	3.6	7.7	0.5	42.9	0
All- India	**14.8**	**2.2**	**1.7**	**3.4**	**14.2**	**41.1**	**29.9**	**83**	**45**	**44.1**

Source: DISE 2015-16.

Table A3.2: Deficit in various type of teachers and teacher training institutes

State	Deficit teacher as percent of Required teacher				Untrained teacher as percent of existing teacher	Vacancies as percent of sanctioned post at teacher training Institutes		
	Primary	Upper Primary	Head Teacher	Part-time Instructors		S C E R T / SIE*	D I E T s / DRCs*	Resource persons at block level
GENERAL CATEGORY STATES								
AP	11.0	0.0	0.0	96.0	0.1	61.5	83.9	66.6
BIH	45.4	36.5	92.6	100.0	40.2	64.3	61.7	50.0
CG	6.8	9.5	0.0	100.0	13.3	57.8	12.9	53.7
GOA	20.2	0.0	54.8	94.1	0.2	37.5	27.3	20.8
GUJ	15.0	28.9	0.0	99.7	0.0	34.9	33.3	24.0
HAR	1.8	0.0	16.8	97.2	0.3	24.7	36.4	33.5
JHAR	35.4	38.5	84.6	99.4	11.4	65.0	58.3	72.3
KAR	27.8	33.3	0.0	99.7	0.5	17.6	4.8	66.7
KER	0.0	0.0	0.0	97.6	0.5	0.0	25.7	0.0
MP	8.7	37.8	21.2	100.0	3.2	45.2	20.0	0.0
MAHA	18.1	18.8	26.7	99.8	0.3	44.9	26.7	18.5
ODIS	15.4	35.4	0.0	86.3	10.9	29.8	42.9	33.3
PUN	8.9	0.0	33.2	100.0	0.0	32.6	0.0	21.4
RAJ	30.9	11.9	0.0	98.2	1.9	20.3	45.5	26.6
TN	26.9	12.6	0.0	54.7	0.2	30.9	23.1	22.8
TEL	17.8	0.0	0.0	93.0	0.1	60.8	7.7	100.0
UP	35.4	38.8	0.0	59.6	15.6	43.3	24.1	100.0
WB	23.5	2.5	0.0	99.9	48.6	66.4	58.3	47.6
SPECIAL CATEGORY STATES								
HP	13.1	0.0	0.0	94.8	2.9	21.2	30.0	8.3
J&K	0.0	0.0	0.0	100.0	44.8	16.4	51.1	53.4
SIK	0.0	0.0	0.0	89.6	44.6	10.2	48.5	69.0
UK	24.0	27.4	0.0	97.7	4.7	39.1	0.0	88.2
ARP	0.0	0.0	83.1	95.8	57.5	0.0	11.1	100.0
ASS	27.0	0.0	0.0	99.9	44.4	50.9	28.3	83.3
MAN	0.0	0.0	0.0	0.0	51.3	35.6	15.8	0.0
MEG	41.7	0.0	0.0	98.8	70.6	56.0	6.9	0.0
MIZ	23.2	0.0	0.0	0.0	5.8	19.5	9.1	0.0
NAG	0.0	0.0	0.0	99.7	64.6	3.2	0.0	23.6
TRI	0.0	0.0	0.0	99.9	63.4	53.0	82.6	31.7
UNION TERRITORIES								
DEL	0.0	0.0	98.9	100.0	0.0	28.5	45.5	83.3
PUD	0.0	0.0	78.4	100.0	0.0	-	-	-
All-India	24.8	21.8	30.7	91.3	15.9	37.9	33.6	52.8

Source: DISE 2015-16 and MHRD for data on vacancies in teacher training institutes.
Note: * State wise status of vacancy in DIETs and SCERT under CSS-Teacher Education Scheme as on (30.04.2016)

Table A3.3: Percentage of school with deficit and surplus teacher in each state

State	Primary			Upper primary		
	percent of Schools with deficit teacher	percent of School with surplus teacher	percent of School with no surplus/deficit teacher	percent of Schools with deficit teacher	percent of School with surplus teacher	percent of School with no surplus/deficit teacher
GENERAL CATEGORY STATES						
AP	33.2	16.6	50.3	54.2	33.5	12.3
BIH	85.0	6.0	9.0	91.9	4.5	3.6
CG	17.6	27.2	55.2	36.8	39.6	23.6
GOA	55.6	19.4	25.1	42.3	38.9	18.8
GUJ	23.6	18.6	57.8	66.9	4.7	28.3
HAR	33.4	18.4	48.2	69.0	21.7	9.3
JHAR	61.4	6.0	32.6	88.7	2.6	8.7
KAR	46.5	11.4	42.0	62.6	18.7	18.6
KER	28.8	62.6	8.6	29.6	60.3	10.0
MP	30.0	16.2	53.7	73.6	8.4	18.0
MAHA	33.2	8.8	58.0	61.9	19.8	18.3
ODIS	27.8	16.3	55.9	81.1	6.9	12.0
PUN	28.3	19.6	52.2	34.1	49.5	16.4
RAJ	49.4	11.5	39.1	41.5	31.2	27.2
TN	25.0	8.3	66.8	31.0	52.3	16.7
TEL	36.6	13.0	50.4	37.2	49.7	13.0
UP	57.1	20.4	22.5	51.1	23.9	25.0
WB	35.4	34.0	30.6	48.3	35.3	16.4
SPECIAL CATEGORY STATES						
HP	14.0	24.1	61.8	22.5	54.0	23.4
J&K	15.1	27.2	57.7	27.1	36.5	36.5
SIK	0.7	89.5	9.8	10.1	83.3	6.6
UK	15.5	11.2	73.2	53.6	23.8	22.6
ARP	43.6	29.7	26.7	47.8	38.6	13.6
ASS	32.3	18.8	48.9	17.8	75.1	7.1
MAN	15.7	57.6	26.7	40.2	45.7	14.2
MEG	29.3	15.6	55.1	9.5	73.7	16.8
MIZ	46.4	40.0	13.6	1.2	97.9	0.8
NAG	12.4	78.2	9.5	17.0	64.5	18.5
TRI	10.6	66.5	22.8	22.8	63.9	13.3
UNION TERRITORIES						
DEL	51.3	29.0	19.7	46.8	41.3	11.9
PUD	12.2	67.0	20.8	61.8	32.8	5.4
All-India	40.3	17.6	42.1	56.5	25.3	18.2

Source: DISE 2015-16.
Note: Teachers' including head teacher are considered.

Table A3.4: Composition of Recurrent Cost (in percent)

State	TS	TPD	SE	O&M	AS	Management	NIE
GENERAL CATEGORY STATES							
AP	61.6	1.1	8	7	5.8	5.7	10.7
BIH	62.4	1.7	13.1	3.1	1.6	3.9	14
CG	65.7	1.1	8.8	7	3.2	3.9	10.4
GOA	67.8	2.1	8.5	5.5	5.3	5.5	5.2
GUJ	66.5	1.2	9.6	4.4	2.2	4	12.1
HAR	62.2	1.1	9.5	5.4	4.1	5.7	11.9
JHAR	63.5	1.6	10.7	6.3	3.2	3.9	10.7
KAR	68.8	1.4	8.2	6.4	2.5	3.8	8.9
KER	72.4	1.1	9.3	4	3	3.7	6.5
MP	62.8	1.2	8.5	7.3	2.9	3.9	13.3
MAHA	68.6	1.3	9	5.1	2.1	3.8	10.1
ODIS	62.9	1.3	8.7	6.6	3.6	3.9	13.1
PUN	63.9	1.2	9.7	6.2	4.3	5.7	9
RAJ	62.7	1.2	8.2	6.3	2.7	6.1	12.9
TN	68.1	1.2	10	5.8	3.6	3.7	7.6
TEL	58.7	1.2	8.2	6.5	6.4	5.7	13.3
UP	55.6	1.2	9.2	5.7	2.8	6.3	19.3
WB	65	1.3	11.3	5.2	2.4	3.9	10.9
SPECIAL CATEGORY STATES							
HP	68.5	1.1	5.8	8.9	5.7	5.7	4.4
J&K	68.8	1.2	5.3	8.1	4.9	5.8	5.9
SIK	75.2	1.8	4	3.5	5.5	5.6	4.4
UK	66.6	1.2	6.6	8.6	4.4	5.6	7
ARP	54.5	1.3	6.5	6.2	9.6	5.8	16.1
ASS	72	1	8.5	6.6	2.3	3.8	5.7
MAN	70.8	1.4	4.6	6	4.5	5.8	6.9
MEG	68.4	1.2	6.6	8.2	3.5	5.7	6.4
MIZ	73.5	1.5	4.2	5.5	5.9	5.7	3.8
NAG	71.1	1.6	4.6	4.5	5.7	5.9	6.7
TRI	73.8	1.4	7.1	4.4	3.9	5.6	3.8
UNION TERRITORIES							
DEL	61.4	1.3	14.3	2.3	2.6	5.6	12.6
PUD	70.2	1.5	7	3.6	5.4	5.6	6.8
All-India	**63.8**	**1.3**	**9.5**	**5.6**	**2.9**	**4.6**	**12.2**

Source: DISE 2015-16.
Note: TS: teachers' salary; TPD: Teachers' professional development; SE: Student's entitlements; O&M: Operation and maintenance; AS: Academic support; NIE: Not included elsewhere.

4

RTE and Resource Requirements: National Level Projection

The foregoing analysis reflects the large heterogeneity across Indian states in the public provisioning for EE. The gap between the normative requirement and actual expenditure is particularly large in the poorer states requiring not only a higher overall fiscal push, but one that would address the unequal positions of the states. We shall return to this subject in Chapter 5. The focus of the present chapter is on the aggregate picture. A normative national level projection over a medium time frame is presented as the baseline scenario. In addition, a few alternate scenarios are considered reflecting different policy choices.

4.1 The Accumulated Neglect

The Education Commission (GoI, 1966) had recommended that the total public education expenditure should be raised to 6 percent of GNP, across two decades, i.e., by the year 1985-86. The system of public education was to develop along the national goal of common school system.

"which will be open to all children irrespective of caste, creed, community, religion, economic conditions or social status" and "where access to good education will depend not on wealth or class, but on talent" and "which will maintain adequate standards in all schools and provide at least a reasonable proportion of quality institutions" and "in which no tuition fee will be charged"; and "which would meet the needs of the average parent so that he would not ordinarily feel the need to send his children to expensive schools outside the system." (p. 10)

In per capita terms, the Commission recommended that the education expenditure in the next 20 years should rise from Rs12 per capita in 1965-6 to Rs 54 in 1985-86 (at constant prices). The required growth of educational spending was to cover higher salaries of school teachers, allow space for non-teacher costs, provide seven years of effective primary education for a growing population, along with certain desirable targets for secondary and higher education. As discussed in Chapter 2, the planned growth of education expenditure was not wishful thinking but embedded in the experience of the post-independence years.

It must be stressed that the target of 6 percent of GDP was in relation to public expenditure alone, and never meant private sector expenditure. The Education Commission had referred mainly to public expenditure. UNESCO and other international statistics that the commission used as a yardstick for comparison also refer to government expenditure only, and the recommendations

made by UNESCO, UNDP, Delors Commission, etc,, in subsequent years refer to government expenditure alone (Tilak, 2006).[46]

Six percent of GDP remained a guiding principle, even as the actual expenditure on education continued to suffer. Looking at the real rates of growth of total expenditure on education, Tilak (2002) notes that whereas the 1950s and 1960s were a favorable period for education, there was a great setback for growth of expenditure in education in the 1970s. The global disenchantment with education, partly attributable to growing educated unemployment on the empirical scene, and on the emergence of screening and credentialism theses on the role of education in the theoretical front, was responsible for the slowdown in the third world. By the mid-1980s, the tide had turned once more. Human resource development became a favorite slogan, with education being regarded as an essential component. However, the rates of growth both in total and per capita terms did not reach the levels experienced during the 1950s.

The National Policy on Education, 1986 noted that the actual investment on education had remained far short of the level of 6 percent of national income. "It is important that greater determination is shown to find funds for the programs laid down in this policy. While the actual requirements will be computed from time to time on the basis of monitoring and review, the outlay on education will be stepped up to ensure that during the 8th Five Year Plan and onwards it will uniformly exceed 6 percent of the national income." (Para 11.4, GoI, 1986)

In direct contrast to the promise held in the policy statement, the decade of the 1990s experienced the slowest rate of growth in educational expenditure (Tilak, 2002). Economic reforms had reduced the fiscal space and expansion in public expenditure and public investments had slowed. Governments at the center and more so in the states came under tremendous pressure to compress their development expenditures and to contain the public sector wage bill, even as the 1990s saw the primary education scene opening up to external assistance on a fairly large scale. Privatization along with informalization of all segments of education provisioning gathered momentum in India. Instead of formal institutions, informal centers were promoted, especially in far-flung and underserved areas, raising serious concerns for equity in education provision and social justice for marginalized communities. Para-teachers/contract teachers were recruited by diluting recruitment procedures, terms of remuneration and service conditions. PROBE (1999) notes that the rhetoric of education as a fundamental right has gone hand in hand with an unprecedented retreat of state commitment to universal elementary education (p. 2).

4.2 Previous Estimates of Financial Gap in Elementary Education

Estimates of "Expert Group Report on Financial Requirements for Making Elementary Education a Fundamental Right", (TMC) set up by the MHRD were made against this conservative macro backdrop. As discussed in Chapter 2, the Committee took a clear position against informal solutions and deployment of contract teachers. Using the minimum norm of two classrooms and two teachers for a PS and reaching gradually a PTR of 30:1 by the tenth year, additional requirements were computed. Teacher's salary was pegged at the revised state pay scales after the recommendation of the 5th Central Pay Commission. The additional resource requirement for UEE over the 10-year period 1998-99 to 2007-08, was estimated at Rs 1,36,922 crores (at 1996-97 prices). Phased

46. Tilak (2006) discusses the various ways in which the 6 percent target has been misinterpreted. There have been attempts to argue that India already spends about or more than 6 percent of GNP on education. That the 6 percent of national income, as recommended by the commission, consisted of not just government expenditure, but also all private expenditure, and even to show that as the goal is already over-achieved, it becomes redundant, and that it does not deserve attention any more.

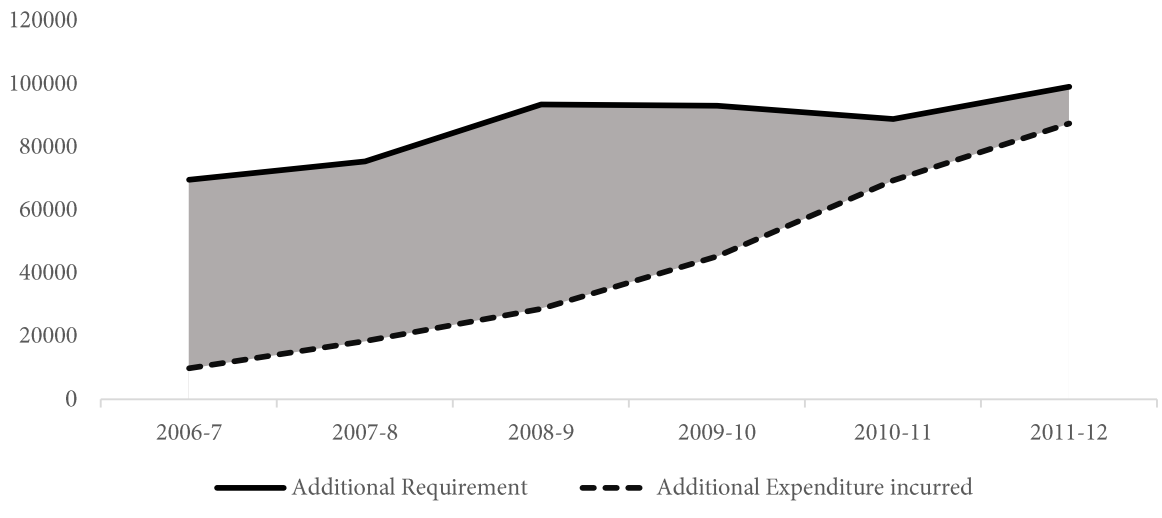
expansion proposed by the TMC meant additional requirements as a proportion of GDP would increase from 0.007 percent in 1998-99 to 1.32 percent in 2007-08.

The estimates of financial requirements by CABE Committee on Free and Compulsory Education (GoI, 2005), a few years later, came in the context of formulation of the draft bill on Right to Education. By then, the 86th Constitutional Amendment Act, 2002 had been passed and Right to Education had the status of a fundamental right. According to the draft bill, all OSC needed to be mainstreamed in three years from the commencement of the Act. The projection path, 2006-07 to 2011-12 reflected this target. It was front-loaded with the additional requirement rising from Rs 66,000 crore in 2006-07 to Rs 82,000 crores in 2008-09 (at current prices) before coming down. Two scenarios with different teachers' salary assumptions were presented, underscoring the importance of the variable in financial resource calculation.

As a proportion of GDP, the additional requirement averaged around 1.51 percent of GDP for the projection period, 2006-07 to 2011-12.[47] Considering the then existing level of expenditure on EE at 1.36 percent of GDP, an additional 1.51 percent of GDP meant that the EE expenditures had to be more than double of the existing share.

Compared to TMC, the estimates by CABE, 2005 (GoI, 2005) were higher. In the year 2006-07, estimates for additional requirement was in the range of Rs 50,000 crores (TMC) compared to Rs 70,000 crores (CABE, 2005), where both are expressed at current price. The fact that deficit were not met or met at a slower pace, necessitated a higher additional requirement in the subsequent period. Despite the higher requirement of CABE (2005), even in the best case, the PTR at PS and UPS that would be feasible was 35:1.

Figure 4.1: Comparison of additional requirement (CABE, 2005 Estimates) to comparable additional expenditure on EE (in Rs Crores)



Source: CABE, 2005 and Analysis for Budgetary Expenditure on Education, MHRD, various issues.
Note: Additional requirement and additional expenditure are expressed in current prices. The base period is the year 2005-6 for CABE, 2005.
Additional requirement (at current price) in year t = Estimated additional requirement for universalisation at current price plus inflation adjustment on total EE expenditure in the base period. GDP deflator has been used for inflation adjustment.
Additional expenditure (at current price) in year t = EE expenditure in year t minus EE expenditure in base year

47. Estimates correspond to Scenario 1(A) with PTR 35:1 at both PS and UPS and average teacher's salary at Rs 7,965 with an annual increase of Rs 800 (KV pay scale of non-graduate trained teacher).

Figure 4.1 provides a comparison between the path of additional requirement for universalisation suggested by CABE, 2005, and the actual trajectory of additional expenditures. The area between the two lines (shaded area) marks the cumulative deficit. It can be seen that the additional expenditure has consistently fallen short of the requirement. Though the gap begins to narrow since 2009-10, it is more a reflection of the effect of the new Pay Commission on wage bill, rather than an increased momentum in closing the gaps.

Around the time when RTE came into being, NUEPA (2009) re-estimated the additional resource requirements. Curiously, these estimates were significantly lower than the CABE (2005) estimates. The 6th Pay Commission (PC) award had been announced in the interim and states were beginning to announce revision in salaries, which should have implied higher financial requirements. PC award wreaked havoc with the financial resources required of the states. It also encouraged more distortion in the teachers' cadre, a point we shall take up further in a a subsequent section. Between 2010-11 and 2014-15, NUEPA (2009) calculated an average of Rs 34,000 crores (at 2009-10 prices) was to be spent additionally. This amounted to less than 0.5 percent of GDP as additional requirement.

One reason for the lower estimates in NUEPA (2009) is the assumption of lower child population (by about 30 percent compared to CABE, 2005) and declining population growth over the years. This assumption was in turn based on Registrar General of India (GoI, 2006) forecasts, which ultimately proved to be an underestimate vis-a-vis Census, 2011. Another adjustment that artificially lowered the requirement was in removing the expenditure on 5.23 lakh unfilled teacher vacancies across different states from the additional requirement calculation, assuming states already had money for their recruitment. Some of the norms considered by TMC and CABE (2005) were also relaxed to cut down the financial requirements. For instance, the management cost assumed at 6 percent of recurring cost was brought down to 4 percent. Lower unit costs were assumed for textbooks for children, in-service teacher training, education on children with severe disability who need home-based education, etc.

Be that as it may, NUEPA (2009) became the basis for allocation of Central funding for RTE. MHRD proposed an amount of Rs 1.82 lakh crores over a period of five years from 2010 to meet the requirement of quality education following the RTE Act.[48] The inadequacy of these allocations was obvious right from the beginning. CBGA (2011) calculated that along with the existing levels of spending, the additional spending as proposed by NUEPA (2009) would mean a total expenditure of Rs 1,40,000 crores annually. Translated to per school spending, it amounted to Rs 22 lakhs. For a norm, the authors held the Kendriya Vidyalayas (KVs) as the model. The existing spending per Kendriya Vidyalaya at elementary level was estimated at Rs 1.02 crores. It brought out that the government proposed to spend only about one-fifth of what it spent on KVs and the gap in spending amounted to around Rs 80 lakhs per school. The birth of a legal RTE had raised the resource envelope to service this right.

4.3 Our Projections

In Chapter 3, we presented a measure of total requirements for 2015-16. Projection of financial requirements across the years estimates how the target may be taken forward. Universalisation of an equitable quality broadly laid down in RTE Act is the target. With substantial deficits existing on multiple fronts, the target cannot be achieved in a single year. And yet, given the rising trend towards exit from government schools, a reflection of the lack of trust in the system, the turnaround has to be expeditious. A medium-term plan over a five-year period, the typical planning horizon followed in India, is considered here.

48. Source: Minutes of Meeting of State Education Secretaries, 28-30 January, 2010.

The key questions explored are: What would be the cost of UEE and therefore what level of expenditure is required at the national level along the projection path? What are the parameters that would determine the path? These projections are if-then estimates, which require careful considerations of the underlying assumptions.

The assumptions used in baseline projections are as follows:

- Compound annual growth rate (CAGR) of population in the 6-13+ age group between 2001 and 2011 has been assumed over the projection period. The population projection is thus based on growth rate of the same age population of children in the previous decade.[49]
- It is assumed that the existing stock of OSC (as in 2015-16) diminishes by 50 percent each year and the dropout rate falls by 10 percent in every year. The latter indicates the improved internal efficiency of the system – and the ability to retain students that can follow from adequate public expenditure and provisioning.
- A 3 percent increase in salary is assumed every year, as teachers, resource persons, officials, and other staff gain an additional year of experience. This is based on the existing practice.
- OSC are absorbed in government schools. OSC receive bridge course, before absorption. After absorption in school, a 10 percent additional markup on per student recurrent cost is considered, for the first year.
- Capital cost over the projection period is spread across three components: (i) backlog of infrastructure deficit in GSs as identified in 2015-16, (ii) additional infrastructure for the projected growth in population, if any; and (iii) cost of repairs. The backlog of infrastructure requirement will be met across five years (2015-2019), with cost spread such that 25 percent work is completed in first year, 22.5 percent in second year, 20 percent in third year, 17.5 percent in fourth year and 15 percent in the year 2019-20, respectively. The cost of repair work diminishes over the years at an increasing rate, as most of the repairs are attended to.
- The expected population growth is taken into account for capital asset planning. The expected increase in population in the following year is factored into the costing for additional infrastructure in the present year. Unlike the infrastructure backlog, the new infrastructure to accommodate the growing population, where needed, would be completed within one year. Norms for the creation of new infrastructure, such as factoring in the existing surplus in CR as well as the proportion of CRs needed in new schools vis-à-vis existing ones, are kept the same as used for resource requirement estimation for 2015-16.
- Previous five years growth rate of enrolments in KVs is assumed over the projection period and determines the growth of enrolment in Central government schools.
- The proportion of children in private schools with fee reimbursement from the government as per Section 12 of the RTE Act, for 2015-16, has been assumed over the projection period.

49. We are aware that the population of particular age groups in the future time-points will not just depend on the same age cohorts but on the age-structure of the population as whole. In age-sex pyramids, one cohort moves from one level to other so 6-13 age-group effectively depends on number of births and deaths in the last five years preceding every five year interval, while births depends on age-sex structure, family planning and marriage rates in the population of 15-49 years. A component method of population projection by single age is the suggested method in population studies. However, in the absence of available estimates using the method, we had no choice but to use the CAGR. The official source of population projection is the Registrar General of India (RGI). The RGI (2006) report on population projections with projections till 2026 has not been updated. The 2011 estimates of population of children in the 6-13 age group in RGI (2006) falls short of the Census (2011) numbers substantially.

Table 4.1: Baseline projection for universalisation of elementary education

	Change in Population (6-13+) in million	Change in Enrolment in million	OSC as percent of Population	Share of enrolment in GS&A (percent)	Per student recurrent requirement at 2015-16 price (Rs)	Total Requirement at 2015-16 price (in Rs Crores)	Recurrent to Total Requirement (in percentage)	Total Requirement as percent of GDP	Additional Requirement as percent of GDP*
	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)
2015-16	-	-	7.1	67.1	23198	377839	85.33	2.75	1.18
2016-17	0.81	8.3	5.6	68.3	23259	388642	87.08	2.64	1.17
2017-18	0.85	6.8	4.7	69.3	23497	399878	88.84	2.54	1.16
2018-19	0.89	5.9	4.1	70.1	23826	411921	90.43	2.44	1.15
2019-20	0.93	5.4	3.7	70.7	24210	424667	91.84	2.34	1.14

Note: * assuming the 2015-16 expenditure at constant prices over the projection period.

- GDP is assumed to grow at 7.2 percent per annum, which is an average of real GDP growth between 2015-16 to 2017-18. Most of the financial estimates are reported at 2015-16 prices. For estimates made at current prices, inflation based on GDP deflator is assumed at 2.9 percent, average of last three years.

Projection of resource requirement has been made for each state and aggregated to obtain the all-India picture. The projection period is till 2019-20.

Table 4.1 presents the estimates of financial requirements and the key variables that determine the trajectory (Appendix Table A4.1 presents the trajectory of state-wise total requirement over the projection period).

Based on our estimates, the increment to population of children in the age group 6-13+ (Column 1) is less than 1 million a year. Overall it is a fortuitous time, where pressure of population growth is not overwhelming as was the case a few decades back. Demographers view this as demographic transition, with India moving from the middle transitional stage to the late transitional stage (Kulkarni, 2014). The transition, however, is not uniform across the country. Both fertility and mortality differ considerably across states and also within states. As a result, the pace of transition is also varied.

It is significant that most of the increase in enrolment will come about due to decline in OSC as the process of universalisation deepens and relatively small part due to population growth. The stock of OSC in age group 6-13+ is estimated at a little less than 15.1 million in 2015-16. We have assumed that 50 percent of these children would be absorbed in 2015-16, whereas a similar percentage of the remaining stock would be absorbed in 2016-17 and so on. In addition, there would be fresh dropouts every year. Drop-out rate is assumed to decline by 10 percent each year, such that the flow or the addition to the stock of OSC falls. A 10 percent decline in the dropout rate is a significant one, though it doesn't entail full universalisation. The 12th Five Year Plan had set a target for elementary level: to improve attendance and reduce dropout rates at the elementary level…. lower the percentage of OSC at the elementary level to below 2 percent for all socio-economic and minority groups and in all states (GoI, 2013: 51). Given the huge number of OSC in certain states, the target for OSC seems distant even by 2019-20 (col. 3).

In the initial year, 67 percent of enrolments are in government and aided schools (column 4). The remaining comprises of private unaided sector that has recognized and unrecognized schools under private management. 1.3 percent of the overall enrolment is in madrasas, recognized and unrecognized. As the OSC join the school system, the share of GS&A schools in total enrolment would increase upto 70-71 percent by the year 2019-20.

Total requirement would increase both on account of recurrent and capital costs. The capital costs for the existing gaps have been spread over a 5-year period at a decreasing rate, by assumption. As the backlog in capital requirements are met, the share of recurring cost rises steadily. The effective per student recurrent cost is Rs 23,198 in 2015-16; it rises gradually by Rs 1,000 approximately over the five-year period at constant prices.

While the total requirement increases over the years, as a proportion of GDP it would fall in the baseline scenario for the rate of growth of GDP exceeds the growth of total requirement. At present, the expenditure on EE is around 1.55 percent of GDP.

The additional requirement is 1.18 percent of GDP in 2015-16 and reduces marginally to 1.14 percent of GDP by the year 2019-20, presuming that 2015-16 level of actual expenditure is maintained in real terms in all the projection years.[50]

The additional requirement figure of 1.18 percent of GDP is comparable to the additional requirement obtained by the two previous Committees –TMC and CABE, 2005. TMC estimates pegged the additional requirement as a share of GDP in the terminal year (2007-8) at 1.32 percent. As per CABE, 2005, the additional requirement was still higher, averaging around 1.51 percent of GDP for the projection period, 2006-07 to 2011-12. The amount of under-spending on public education thus remains almost unchanged, despite the enactment of Right to Education Act. The overall expenditure on EE consistently needed to be higher by 1.2-1.5 percent of GDP. This underspending indicates hidden neglect on two accounts. One, not being able to provide access to those OSC and also denying those at school a chance for equitable education.

Table 4.2 summarizes the additional financial requirements for each year and the cumulative amounts, in constant and current prices.

Table 4.2: Baseline trajectory of financial requirement for elementary education: 2015-16 to 2019-20 (Rs Crores)

	2015-16	2016-17	2017-18	2018-19	2019-20	Cumulative Amount
Additional Requirement at 2015-16 prices	1,62,001	1,72,166	1,82,951	1,94,546	2,06,835	9,18,498
Additional Requirement at current prices	1,62,001	1,78,129	1,95,108	2,13,428	2,33,423	9,82,088
Total Requirement at current prices	3,77,839	4,02,104	4,26,450	4,51,900	4,79,254	21,37,548

50. The year on year growth of additional requirement is higher than the growth of total requirement, as the actual expenditure is assumed to be fixed at 2015-16 levels in real terms over the projection period. This accounts for the marginal decline in additional requirement to GDP ratio.

The estimate of total requirement at current prices are to facilitate a direct comparison with actual public expenditure on EE in the coming years. At constant prices, the additional requirement is Rs 9,18,498 crores in cumulative terms.

In the next three sections, we analyse a set of different scenarios, reflecting different policy choices. Scenario analysis is a process of analyzing possible future events by considering alternative possible outcomes ("alternative worlds"). Scenario analysis, often used in projection, can present several alternative future developments. Scenarios could depict impact of exogenous factors (eg, lower growth rate of GDP, in the present model) or policy choices (eg, Pay Commission award). Scenarios could also target certain outcomes such as reduction in OSC, or a change in public private mix in overall enrolment.

4.4 Phased Reduction in PTR

At the all-India level, it is estimated that total teachers required is 6.19 million in 2015-16 (including teachers needed for mainstreaming OSC), of which 5.87 million teachers for only in-school children. 1.79 million is the teacher gap, equivalent to 31 percent of required teachers.[51] Ignoring part-time instructors, the gap is 1.38 million, inclusive of teachers needed for OSC. In the baseline scenario, while we have spread the capital cost across five years, the recurrent requirement assumes that all teachers required are in place or will be recruited immediately. Where there are substantial gaps, this assumption is unrealistic. Tapas Majumdar Committee had noted that it may not be possible to match the monetary and financial resources made available for UEE with the necessary human resource component, in the form of professionally adequate teachers within a short span. The next scenario demonstrates a path where RTE norm relating to PTR comes into effect in a staggered manner. The two paths converge in the terminal year 2019-20. The relief that gradual recruitment of teachers provides to some states can be quite substantial.

The scenario is first depicted for a particular state and then for all-India.

Bihar with very high all-round deficits is a case in point. Teacher gap is more than 50 percent of the required teachers. Bihar also has a huge backlog of infrastructure which, combined with low fiscal capacity relative to the resource requirements, presents a near impossible situation.

Table 4.3: Phased universalisation: Estimates for Bihar

	Total Requirement as percent of GSDP		Recurrent cost as percent of total requirement		Effective RPTR	
	Baseline	Gradual meeting of teacher gap	Baseline	Gradual meeting of teacher gap	Baseline	Gradual meeting of teacher gap
2015-16	13.5	10.9	74.8	68.8	27	45
2016-17	12.7	10.8	76.9	72.7	27	39
2017-18	12.1	10.8	79.2	76.7	27	34
2018-19	11.5	10.8	81.7	80.6	27	30
2019-20	11.0	11.0	84.1	84.1	27	27

Note: Effective RPTR is Effective Required Pupil Teacher Ratio

51. For in school children, teacher deficit as percentage of required teachers is 25.1 percent (refer to Table 3.1).

We assume teacher gaps of 2015-16 would be filled in the next five years where rate of fulfilment is 20 percent in each of these years. Phased reduction in PTR brings down the total requirements by 2.6 percent of GSDP of the state in the initial year vis-à-vis the baseline scenario (Table 4.3). It still remains very high requiring more than 10 percent of GSDP of Bihar, but it is less front-loaded. The difference vis-à-vis the baseline reduces over the years. The share of capital investment goes up in total requirement. The effective required PTR falls steeply from 45 in 2015-16 to 27 in the final year.[52]

One could have allowed a longer time frame than five years, particularly when the distance is so large. Essentially, two considerations need to be balanced. The risk of a more gradual meeting of teacher gaps is multi-grade teaching and, higher PTR in the interim. This would certainly compromise the quality of teaching-learning. On the other hand, a longer time period may allow states more preparation time for a clearly thought out recruitment process involving transparent selection procedures, postings and proper training to build a cadre of qualified and sensitive teacher professionals. Pressures to recruit a large teaching workforce to meet RTE obligations have led many states to seek exemptions from fulfilling their legally binding teacher qualification norms.[53]

Table 4.4 presents the comparison of resource needs between baseline and phased universalisation path for all-India. The same scheme of phased universalisation, as in Bihar, has been applied in nine states where the teacher gap is more than 20 percent. These include: Jharkhand (44 percent), Karnataka (32 percent), Uttar Pradesh (30 percent), Madhya Pradesh (27 percent), Maharashtra (25 percent), Orissa (23 percent), Rajasthan and Gujarat (22 percent). For the remaining states, baseline assumptions hold.

Table 4.4: Phased universalisation: All-India estimates

	Per student required recurrent cost (in Rs)		Total Requirement as percent of GDP		Additional Requirement as percent of GDP		Effective PTR	
	Baseline	Gradual meeting of teacher gap	Baseline	Gradual meeting of teacher gap	Baseline	Gradual meeting of teacher gap	Baseline	Gradual meeting of teacher gap
2015-16	23198	21155	2.75	2.54	1.18	0.97	22	26
2016-17	23259	21665	2.64	2.48	1.17	1.01	22	25
2017-18	23497	22394	2.54	2.44	1.16	1.06	22	24
2018-19	23826	23255	2.44	2.39	1.15	1.10	22	23
2019-20	24210	24210	2.34	2.34	1.14	1.14	22	22

52. Effective required PTR has been calculated by dividing the total number of pupils to total number of teachers required as obtained from school-wise application of the RTE norms. It includes all teachers including part-time instructors and head teachers.

53. Section 23(2) of RTE Act specifies that all teachers at elementary level who, at the commencement of this Act, did not possess the minimum qualifications as laid down under the RTE Act, need to acquire these within a period of five years i.e., 31st March, 2015. Through an amendment to the RTE Act in 2017, the deadline has been extended to March 2019.

In the all-India picture, total requirement (and additional requirement) to GDP is lesser by about 0.2 percentage point of GDP in the first year when compared to the baseline scenario, The difference tapers in the next few years as the required PTR is achieved by 2019-20. The effective RPTR gradually reduces from 26 to 22 as compared to uniform 22 in the baseline.[54]

4.5 Pay Commission Award

Teacher's salary (TS) being the major constituent of financial costs, its correct assessment is central to the resource estimation exercise. From time to time, the Central Pay Commissions, set up by the Government of India, have given their recommendations regarding changes in pay, allowances and pension of government employees. The recommendations of the Pay Commissions (PC) have a bearing on the salaries of teachers, though not in entirely predictable ways. During the projection period (2016-2019) the seventh PC recommendations for revision of pay and allowances are to be rolled out. This section looks at the possible implication of implementing the 7th PC award. In order to understand the possible implication of the 7th PC it would be instructive to refer to the debates and controversies surrounding the earlier PCs.

TMC had used salaries "based on revised State Pay Scales after the recommendations of the 5th PC". Primary and upper primary school teachers' salary was assumed at Rs 5,000 and Rs 6,000 per month, respectively. CABE (2005) added the element of annual increment to salaries. It projected financial requirement under two teacher salary scenarios, recognizing the two different official pay scales coexisting. One based on state pay scales (Rs 6,000) and another based on KV scales (Rs 7,965).

Meanwhile, 6th CPC recommended a steep hike in salaries of government employees, which rendered the earlier financial estimates out of date.[55] It was in the context of the 6th PC award that Jain and Dholakia (2009) questioned the feasibility of RTE for all using public institutions (refer to the discussions in Chapter 1). The authors provocatively argued, "meeting the goal of universal schooling of all of India's children under an education budget of 6 percent of GDP is not possible if all education is through government schools and all the teachers are to be paid salary as recommended by the Sixth Pay Commission" (p. 41, J&D, 2009).

The first thing to note is that the 6th PC salaries are not sacrosanct, nor universally applied. J&D assert that the *"political leadership will rule out the possibility of reducing the government schoolteachers' salary significantly below the levels recommended by the 6th PC either through hiring them on ad hoc basis or denying them the benefits available to permanent regular teachers for a longer time"*(p.41, J&D, 2009). The reality is different and complex. In a study of nine states, NUEPA (2016) report that although most states in principle have adopted the 6th PC, each state has contextualized it. Karnataka and Punjab, among the nine states, didn't accept the 6th PC recommendations. Among the rest, many have adopted the 6th PC but adopted a lower pay band for teachers. Odisha, for instance, has a pay scale of 5200-20200 and GP of 2200 for primary and upper primary teachers. Some states have adopted a lower pay band for primary teachers and a higher pay band for the teachers teaching higher grades. Since government school teachers are employees of the state government (or local bodies in some cases), it is the prerogative of the state government to determine the salaries. Outline for increase in wages for teachers would be linked to states' own plan for performance of the system. This is not a fiat by the Center, as is conveniently assumed; the federal structure of the Constitution gives that space to the states.

54. The effective required PTR all-India (22) is smaller than was observed for Bihar (27). This is due to the dominance of smaller schools in the all-India story. The average school size in Bihar, 302, far exceeds the all-India average of 114 enrolled per school (refer to Figure. 3.6 in Chapter 3).

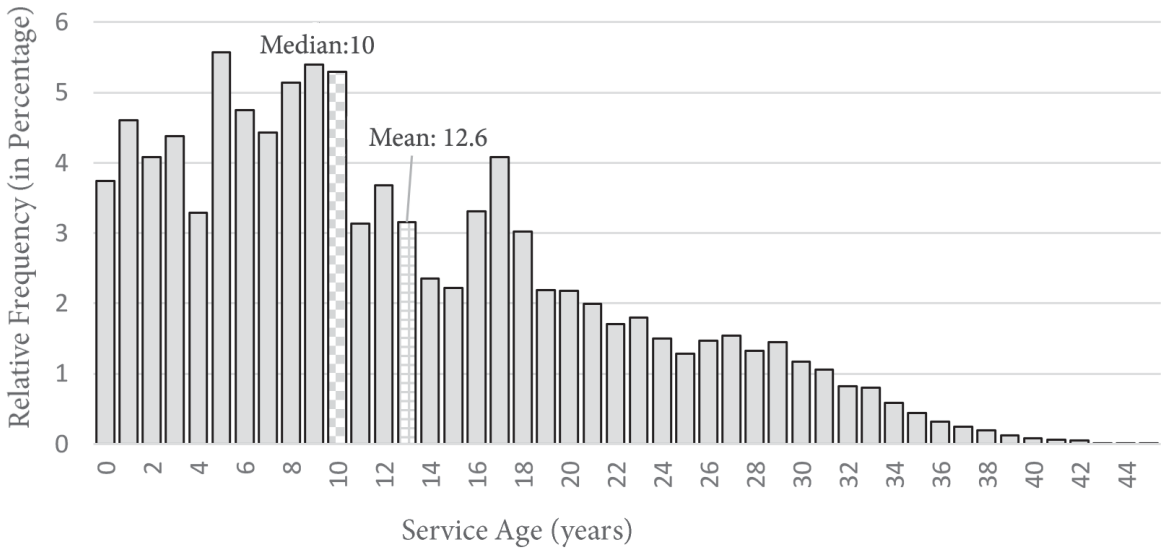
58. The 6th Central Pay Commission recommendations amounted to close to 40 percent increase in remuneration in 2008. https://www.gconnect.in/orders-in-brief/7thcpc/15-salary-hike-in-7th-cpc.html

Neither has the political leadership in the states ruled out para teachers and guest teacher recruitment as we have already noted. Bhatty, De and Roy (2015) note, there are at least four-five different salary scales in every state of the country, with only one scale coinciding with the 6th Central PC level of salary. Thus, teachers' salaries could range from Rs 2,700 to Rs 50,000 a month, for the same quantum of work. In any school with multiple teachers, perhaps one or two would be regular teachers.

Finally, within the aggregate framework used by J&D, some of the key parameter values are out of sync with the reality of India's school system. These parameters drive the results to a significant extent, and the authors are thus erroneously drawn to conclude that the public expenditure required for education is as high as 22-23 percent of GDP and above 15 percent of GDP on a sustained basis (J&D, 2010). In our recent commentary, the questionable premise of the quantitative exercise in Jain and Dholakia (2009) is held up to scrutiny (Bose, Sardana and Ghosh, 2018). We demonstrate that For instance, the assumption on the average experience of teachers which determines the markup over the starting salary drawn by a teacher is hugely overestimated in J&D. Average experience of teachers is assumed at 20 years, whereas we find that the number of years of experience of elementary school teachers have a mean and the median values of 13 and 10 years, respectively (Figure 4.2). When we take into cognizance the teacher deficits, estimated at 31 percent of the required teachers at the all-India level, it further drags down the average experience and therefore financial requirement. Similarly, teacher allowances (to be applied on the basic salary) assumed at 40 percent in J&D, hardly comes close to the reality of most states. Teachers in Central government institutions are the only ones with such high allowance rates. Going by the evidence of the states, 20 percent as the allowance rate would be a reasonable assumption.

Using more realistic parameter values, we obtain that the resource requirement estimates for the year 2006, are significantly lower than what is reported. Further, applying the same method for 2016, the overall education budget works out to 4.6 percent of GDP, which in no way can be called "infeasible". [56]

Figure 4.2: Service-Age distribution of existing teachers



Source: DISE 2015-16.

59. For details refer to Bose, Sardana and Ghosh, 2018.

Of course, the macro-aggregate derived by J&D can only be a ballpark figure. The approach is inappropriate to estimate the requirement with any degree of accuracy. The PTR is a case in point. J&D assume a PTR of 30, whereas we have seen – from the analysis of school-wise enrolment pattern within the framework of RTE norms – the effective RPTR works out to be 22. It means many more teachers are required than what the J&D estimates could provision.Using the 6th PC salary (KV scale), within our framework, we find that the total requirement for EE increases by 1 percent of GDP vis-a-vis the baseline (Table 4.5). It is a very substantial jump. For 2015-16, the effective monthly salary per teacher goes up from Rs 27,434 to Rs 45,944. PSRC goes up by Rs 10,000 per student and the total requirement on EE is 3.75 percent of GDP. By taking the 6th PC (KV) pay scales, we have defined the maximum that may be required. Table 4.5 also presents the likely impact of the 7th PC award. As argued above, the adoption of Pay Commission award can be very varied across states. States contextualize the pay increase as per their own plans, which lends a measure of tentativeness to these results. Nevertheless, a forward-looking projection must take into account at least the anticipated shocks. Under-estimation of resource requirement can render estimates less relevant as benchmarks.

A 15 percent increase in salaries is expected as a result of the 7th Central Pay Commission award.[57] The impact of the Pay Commission award is likely to kick in from 2017-18.[58] The increase will be felt in terms of revised salaries. Due to implementation of the 7th PC award, effective salary per teacher is estimated to rise by around Rs 5,000 per month from Rs 28,257 in 2016-17 to Rs 33,343 in 2017-18 (Table 4.5). That is, an increase of 18 percent over the previous year, of which 3 percent is due to the regular increment and 15 percent is due to one-time adjustment.

Table 4.5: Comparison of pay Commission effects

	Effective monthly salary per teacher (in Rs)			Per student required recurrent cost (in Rs)			Total requirement as percent of GDP			Additional requirement as percent of GDP		
	Baseline	6th PC (KVScale)	7th PC on Baseline	Baseline	6th PC (KV Scale)	7th PC on Baseline	Baseline	6th PC (KV Scale)	7th PC on Baseline	Baseline	6th PC (KV Scale)	7th PC on Baseline
2015-16	27434	45944	27434	23198	33157	23198	2.75	3.75	2.75	1.18	2.16	1.18
2016-17	28257	47322	28257	23259	33480	23259	2.64	3.64	2.64	1.17	2.16	1.17
2017-18	29105	48742	33343	23497	34000	26064	2.54	3.55	2.79	1.16	2.16	1.40
2018-19	29978	50204	34343	23826	34626	26460	2.44	3.44	2.68	1.15	2.14	1.39
2019-20	30877	51710	35374	24210	35316	26914	2.34	3.33	2.58	1.14	2.12	1.38

60. Obtained using the 7th CPC pay matrix, after applying the fitment factor of 2.57 to the existing Basic Pay.

61. Refer to RBI Report, State Finances: A Study of budgets of 2017-18 and 2018-19, p. 22.

The recurring cost increases by Rs 2,800 per student. The impact of 7th PC will increase the total requirement by 0.25 percent of GDP vis-à-vis the baseline in the last three years of the projection period. Additional requirement to GDP is estimated to be around 1.4 percent of GDP from 2017-18 onwards. Compared to the 6th PC scales, the increase is more modest in this case.

4.6 Shift Back to Government Schools

The private school sector in India is highly heterogenous and includes schools run by charitable trusts, voluntary organizations, along with a whole spectrum of fee charging schools from elite private institutions to low-fee private schools. A key feature of the EE scene in India, in the last two decades, is the rapid spread of private schools, particularly the low fee private schools. The latter are schools that are ostensibly viewed as responding to the growing demand of poor families for good quality private English medium education. Among the economically weakest sections, as well as in households that have little or no schooling, and among socially vulnerable sections, there was a small but significant proportion of children who were accessing private unaided schooling in 2005, writes Nambissan (2012). Typically, these are schools run at a low cost with minimum infrastructure and resources, and teachers on contract who are paid a fraction of the salaries their counterparts received in government schools.

The phenomenon of low-fee private schools (LFPS) is particularly widespread in certain states. De at al's (2002) study of schools and households in one district each of Rajasthan, UP and Haryana confirms the substantial presence of LFPS. The authors conclude that that the more newly established low-fee private schools would cease to function if government schools were to deliver good quality schooling. While the fees in the low-fee private sector may be "affordable" for a segment of the population, it involves substantial sacrifice of consumption expenditure by the low income households to send their children to school.

There is no official data on the magnitude of low-fee private schools, even though everyone acknowledges their widespread presence. As per NSSO (2014-15), in the state of UP, about 28 percent of the children from the two lowest consumption quintiles are attending private unaided schools in rural areas. In urban UP, the corresponding figure is 57 percent, signaling a system which has seen massive exit from government schools, even amongst the most deprived groups. From the equity perspective, these families certainly deserve to be served by a well-functioning public school system.

A relevant question challenging the current trend then is what would be the financial implications of changing public-private mix in favor of the public. In Chapter 1, we noted that in most of the OECD countries only about 10 percent of students attend private primary schools. In India the proportion has crossed 30 percent, with much larger private presence in some states. If the state is truly committed to improvement of public schools, there is no reason why the low fee private schools should proliferate. A counter current of children shifting back to public schools becomes a real possibility and one that would be in their interest and in the interest of education system and society. The underlying belief here is that as the unmet resource gaps are met and the functionality of school system restored, there will arise a real possibility of a shift back. The following scenario is a projection of a counter current, where children shift back from private to public schools and its cost implications.

The shift is operationalized, as an alternate scenario, by lowering the percentage of children in unaided private schools to 23 percent from the existing levels in 2015-16 in states where this percentage is higher. For states where the percentage of enrolment in private unaided is equal or less than the cutoff of 23 percent, there is no difference vis-à-vis baseline scenario.

The scenario is first depicted for a state and then for all-India.

In UP, the private unaided sector accounts for 46 percent (with madrasas accounting for another 3 percent) of the enrolment in 2015-16 (DISE, 2015-16). In the alternate scenario, this share is brought down to 23 percent by the year 2019-20. Figure 4.3 presents the contrast vis-à-vis the baseline for UP. Unlike the downward sloping trajectory of total requirement to GSDP in the baseline, the requirement shall go up over the years to 7.54 percent of GSDP by 2019-20 as more children now access the public schools. The cost implications of a reverse flow (with a fifth in private and the remaining in public schools) would be substantial for states. Seen from another perspective, expansion of private sector has reduced the burden and responsibility, including financial responsibility of the governments considerably.

Table 4.6 presents the all-India picture. In the baseline scenario, the rise in share of enrolment in public schools is owing to inclusion of OSC. In the alternate scenario, the public school coverage has gone up as a result of the shift towards public schools in several states across India.

From the initial distribution of students, the share of enrolment in public schools rises to 80 percent and private unaided falls to 20 percent by 2019-20. Thus, compared to the baseline

Figure. 4.3: Trend in total requirement as % of GSDP in UP

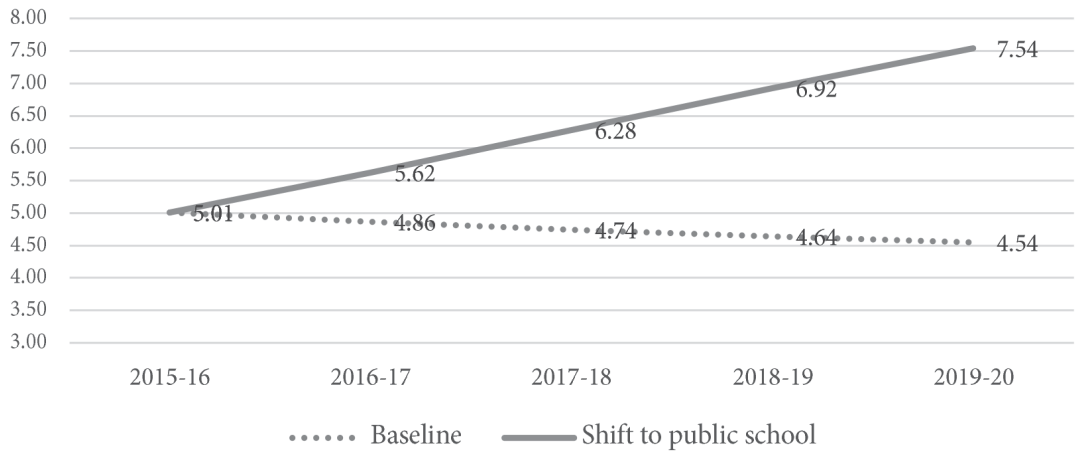


Table 4.6: Shift in public-private mix: All-India

	Share of enrolment in GS&A (percent)		Recurrent cost as percent of total requirement		Total Requirement as percent of GDP		Additional Requirement as percent of GDP	
	Base-line	80 percent Public Coverage	Base-line	80 percent Public Coverage	Base-line	80 percent Public Coverage	Base-line	80 percent Public Coverage
2015-16	67.1	67.1	85.33	84.65	2.75	2.77	1.18	1.19
2016-17	68.3	70.2	87.08	82.55	2.64	2.85	1.17	1.37
2017-18	69.3	73.4	88.84	80.88	2.54	2.95	1.16	1.56
2018-19	70.1	76.5	90.43	79.58	2.44	3.02	1.15	1.72
2019-20	70.7	79.6	91.84	78.47	2.34	3.08	1.14	1.87

scenario, enrolment is about 10 percent higher in public schools by the end of the projection period. That is, approximately 20 million children are being added over four years to the public system. By far, it is much higher than the additions seen so far, in any of the scenarios. Capital requirement spikes as the existing structure does not have adequate capacity and surpluses, where they exist, are exhausted almost immediately. Increased requirement of new capacity creation is reflected in lower share of recurrent cost to total requirement (Table 4.6). Of course, the requirement for additional teachers, administrative costs and all other recurrent cost swell as well. However, due to the lumpiness of capital investment, the share of capital to recurrent changes.

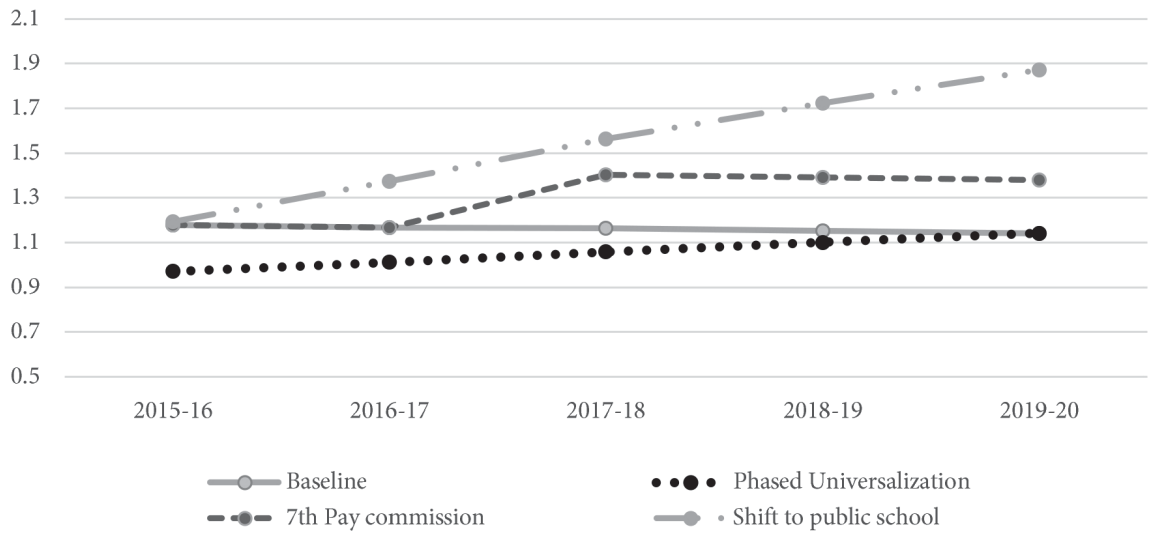
Total requirement sees an upward movement. Compared to the baseline scenario where it stood at 2.34 percent of GDP in 2019-20, it has gone up to 3.08 percent of GDP. Assuming that the State is committed to an expenditure of 6 percent of GDP for education, the increased coverage by the public system is an achievable target.

The social impact of the reversal is expected to be far reaching. It would not only be limited to the children of those families who actually make the switch. As the negative projection of the government school system is reversed and trust is renewed in the system, there would be pressure on the public system to perform and improve. The positive externality would extend to the private unaided sector as the performance benchmark for it goes up. Dysfunctional government school system hardly provides a credible bench mark or effective competition, unlike what is commonly assumed.

To sum up, this chapter has presented the macro aggregate of resource requirements for EE in a medium timeframe. A medium timeframe rather than a longer period seemed appropriate given the urgency of the issues at hand, besides the fact that the uncertainty of base conditions renders long-term projections less relevant. Figure 4.4 brings together the additional requirement to GDP for the different scenarios considered in the chapter. Additional requirement to GDP is 1.18 percent declining marginally to 1.14 percent over the years, in the baseline scenario.

A more gradual filling of teacher gap than what has been considered in the baseline, lowers the immediate additional requirement to 1 percent of GDP which must eventually

Figure 4.4: Trend in additional requirement as % of GDP: All-India



rise to 1.14 percent in the terminal year. On the other hand, factoring in the impact of the 7th Pay Commission award on the public sector teachers' wage bill raises the additional requirement to 1.38-1.4 percent of GDP from the year of implementation. We have argued that the additional requirement estimates are broadly in line with what was proposed by TMC and CABE, 2005. Finally, to imagine a more equitable public-private mix in favour of public schools in the medium term, would need a greater resource effort of 1.9 percent of GDP as additional requirement. There is no reason to think that it is not in our reach.

Appendix (Chapter 4)

Table A4.1: Total requirements during 2015-16 to 2019-20 in the baseline projection (in Rs crores)

State	2015-16	2016-17	2017-18	2018-19	2019-20
GENERAL CATEGORY STATES					
AP	11383	11586	11765	11931	12093
BIH	51345	52138	53120	54248	55513
CG	10220	10595	10970	11369	11802
GOA	389	394	398	403	408
GUJ	16656	17764	18869	20042	21230
HAR	4613	4809	5000	5190	5381
JHAR	12040	12522	13018	13607	14203
KAR	15658	16167	16646	17112	17577
KER	5522	5641	5764	5888	6016
MP	26452	27668	28894	30143	31503
MAHA	29612	30431	31227	32016	32809
ODIS	16606	16935	17250	17566	17895
PUN	4985	5149	5300	5445	5585
RAJ	22071	22962	23891	24909	25984
TN	13071	13318	13562	13811	14071
TEL	7758	7780	7793	7805	7819
UP	56166	58499	61184	64249	67547
WB	28516	28891	29231	29560	29897
SPECIAL CATEGORY STATES					
HP	2748	2763	2774	2785	2799
J&K	6245	6298	6349	6402	6460
SIK	486	496	506	516	526
UK	3209	3269	3324	3381	3446
ARP	1193	1207	1222	1239	1264
ASS	14656	14802	14941	15089	15255
MAN	1342	1379	1416	1456	1508
MEG	2810	2823	2838	2863	2896
MIZ	738	755	772	790	808
NAG	982	998	1012	1024	1035
TRI	1969	1946	1921	1899	1878
UNION TERRITORIES					
DEL	3114	3228	3342	3456	3573
PUD	219	231	242	254	268

5

Policy Perspective

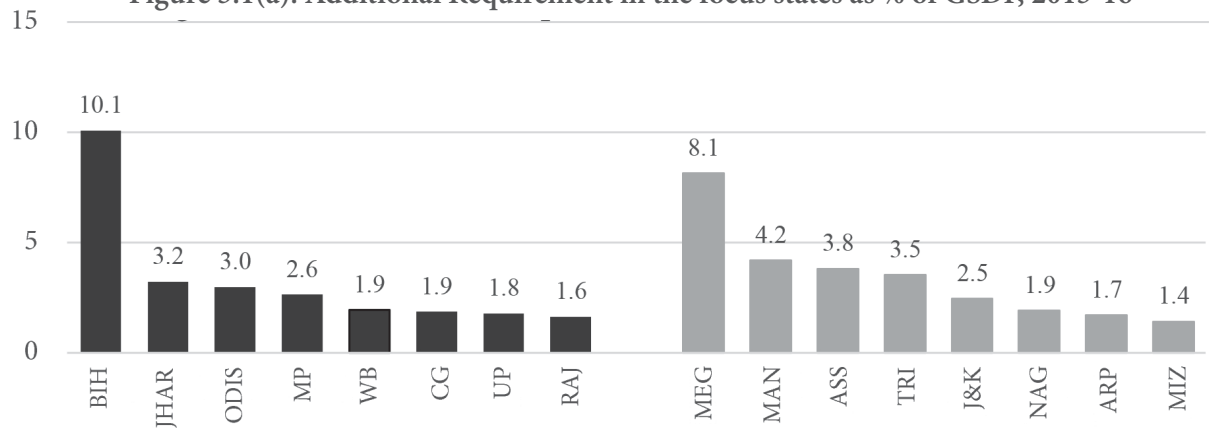
Guarantees and entitlements require a clear and unequivocal commitment of financial resources and reforms. Normative funding and financing of gaps on an equalizing principle has to be a key component of such efforts.

Sinha, 2013 (p. 137)

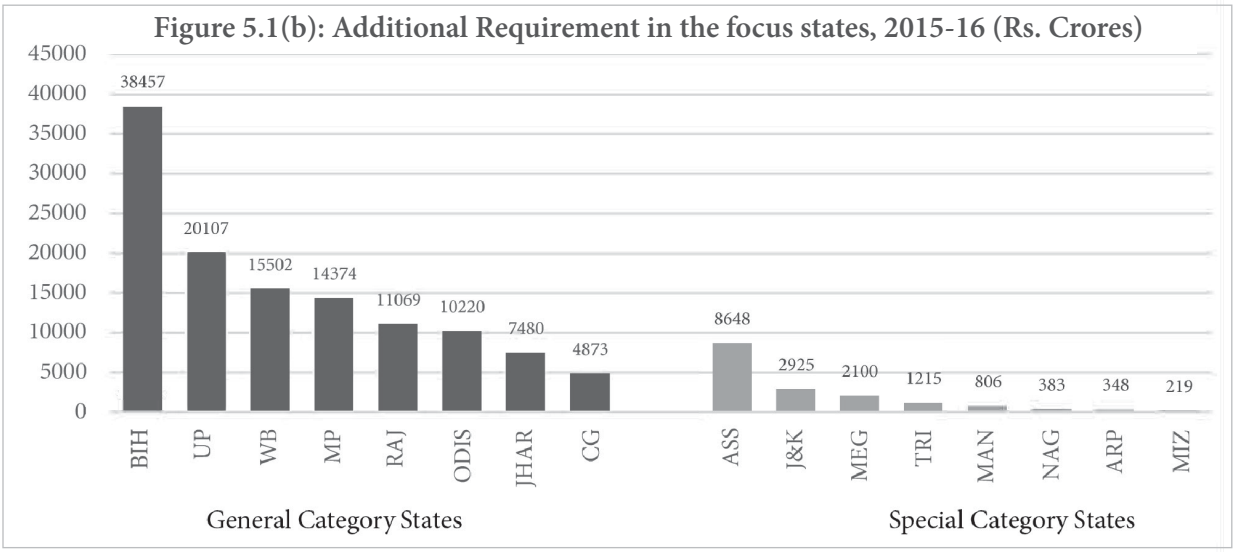
5.1 Need for Differential Treatment

Feasibility analysis for individual states in Chapter 3, Section 3.3.4 revealed the heavy burden of additional requirement in select states. Sixteen states were identified with additional requirement to GSDP exceeding 1 percent. Additional requirement is estimated at 10.1 percent of GSDP for Bihar. Among seven other general category states, it ranges between 3.2 percent of GSDP (Jharkhand) to 1.6 percent of GSDP (Rajasthan). For Meghalaya, the additional requirement to GSDP stands at 8.1 percent, whereas it is 1.4 percent for Mizoram with six more special category states lying in between (Figure 5.1(a)). Figure 5.1 also summarizes the additional requirements in absolute terms for these 16 states (henceforth called the focus states). Low revenue base and disproportionate resource requirements define the status of these states. Though both sets of states suffer from high resource gap, there is a difference. Unlike most of the general category states, for the special category states in Figure 5.1, the problem of access – in particular, availability of teachers – has generally been addressed. The latter need additional financial support to equalize teachers' salaries, regularize and train them, spend on non-teacher costs including better management, etc.

Figure 5.1(a): Additional Requirement in the focus states as % of GSDP, 2015-16



Source: Same as Table 3.3.



Source: Same as Table 3.3.

For these identified group of 16 states, EE today requires a special thrust. And the thrust, as we argue below, has to come from the Center. The sum of additional resource requirements for the 16 focus states amounts to Rs 1,38,727 crores, or 1.01 percent of GDP for 2015-16, the reference year. It accounts for most part of the additional resource requirement, estimated at 1.18 percent of GDP, for all-India (refer to Chapter 4).

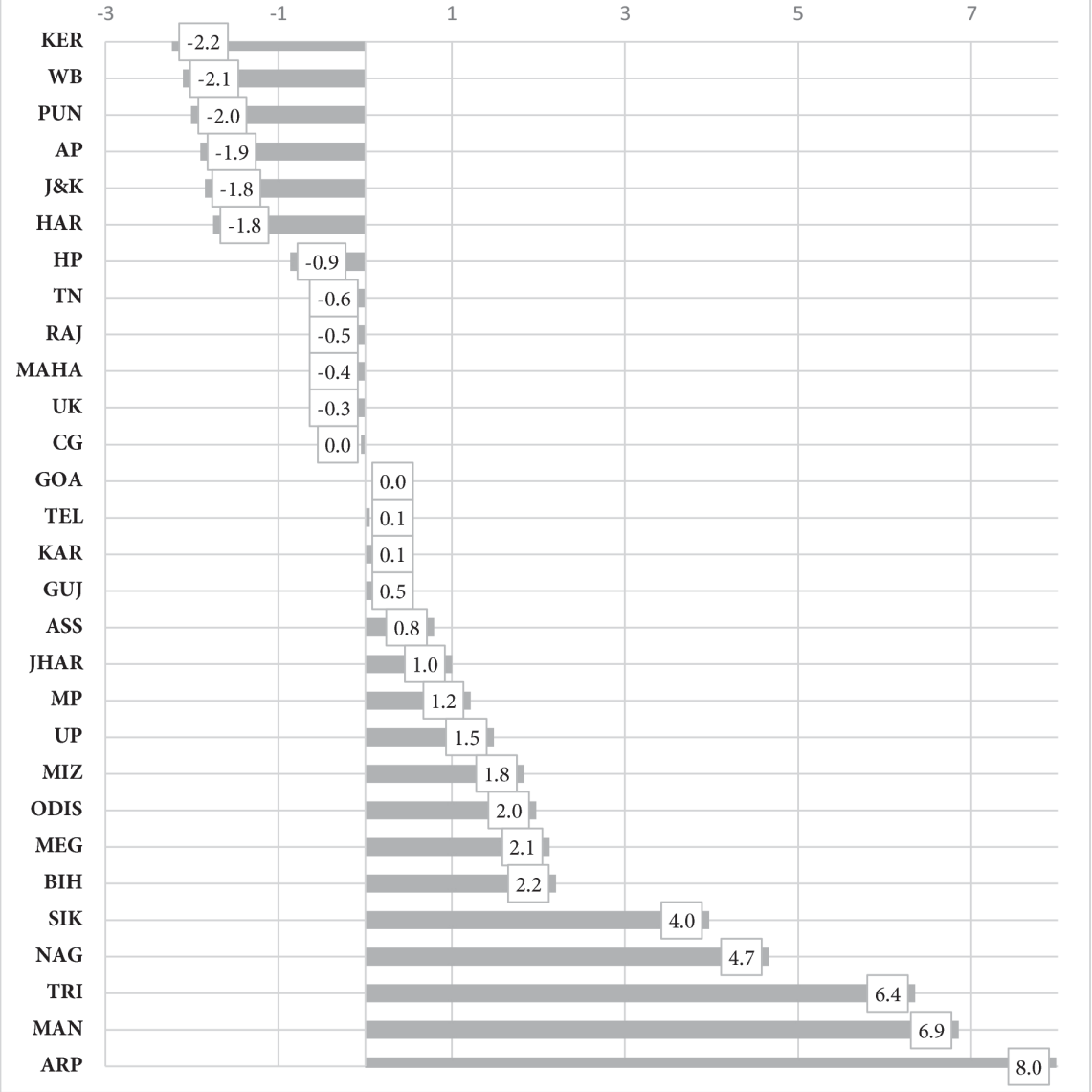
For the rest of the states, a hand-holding plan is required. It is more in the sense of nudging the states to maintain a national priority with a long-term view of the problem. To borrow from V.K.R.V. Rao (1972), the Center should play a stimulating, innovative, consultative and promotional role in educational development. This is not as much for resources (the underlying assumption being these states can raise additional resources through their own efforts) but more importantly to break the cynicism cycle in the present context marked by massive exit from public schools. States require help to draw up plans that would turnaround government schools, build up school teams, create a system of accountability and trust by better spending on management and therefore meet the challenge of exit. We will return to the question of school functionality in a subsequent section.

5.2 Why Central Push?

Historically, left to themselves in the post-independence years, only a few states such as Himachal Pradesh, Tamil Nadu and Kerala chose this sector as priority. The Directive Principles of State Policy were far reaching in their vision. Very few states, however, adopted them. There were shortages of teachers and classrooms everywhere; single teacher schools were in large numbers. Similarly, MDM program was demonstrated for over 20 years in Tamil Nadu. Yet none of the other states chose to implement the scheme until the Supreme Court ruling came. To set national priorities, and to work in concurrence – Center and States – to achieve these objectives is therefore crucial.

Added to the differential priorities across states, the fiscal situation of Indian states has been very unequal. Own tax and non-tax revenues of the lagging states are relatively small. Crippling imbalances in taxation abilities have led to substantial differences in standards of social and economic services across states. Further, the macro-fiscal context has set a tight leash on borrowings, and therefore states' expenditures. Fiscal rules as laid down in the Fiscal Responsibility and Budgetary Management Act, 2003 have restricted the ability of states to finance

Figure 5.2: Revenue surplus to GSDP (%), average 2013-14 to 2015-16



Source: CAG, Finance Accounts, various years.

expenditures through borrowing. Rather, most states, especially the poorest ones, are running a surplus on the revenue account (Figure 5.2). The measure of revenue surplus reflects the revenues that could have been spent on EE, among other things. Under the circumstances, inter-governmental transfer mechanisms are the only ways to correct for the differences in fiscal capacities.[59] And yet as is well-recognized, devolution of divisible pool of Central taxes

59. There are two types of fiscal imbalances that characterize our taxation structure. Vertical imbalance refers to the difference in taxation powers that is vested under the union and state governments under the Constitution. Union government collects the direct taxes and a major share of the indirect taxes. State governments collect fewer taxes but must take on a disproportionate share of expenditures. Vertical transfers from the union to the states is supposed to correct for the vertical imbalance. Horizontal imbalance refers to the difference in revenue capacity vis-à-vis the expenditure needs to provide equitable levels of services across states. Horizontal imbalance is sought to be corrected by equalization transfers. Till recently, fiscal transfers were broadly effected through the Planning Commission, Finance Commission and partly through Central Ministries via specific purpose grants. Since the dissolution of Planning Commission, the Finance Commission decides the pattern and sharing formula for fiscal transfers.

through the Finance Commission (FC) channel only partially offsets these differences across states (Rao, 2017). It has not been able to come close to mitigating the differences in taxable capacities. Equalization, in this context, implies similar levels of per capita spending on social and economic services. That is, lack of association between taxable capacity and per capita public spending on social and economic services. While the Finance Commission transfers have been progressive in nature, they have not been sufficiently so. For merit goods, such as EE, there has always been a strong logic for additional transfer of resources to the states.

Central assistance has typically taken the form of plan grants, and majorly Centrally Sponsored Schemes (CSS). Arguing strongly for financial concurrency, V. K. R. V. Rao (1972), then union minister for education and youth services, noted, "In respect of universal primary education which is a constitutional directive, some states can reach the goal in 10 years while others may need more than thirty to do so… Anything that the Center can do to reduce these imbalances will be welcome in all quarters…Center should increase its investment in education and make larger grants available, not only for the Central sector, but also for the Centrally sponsored sector. We need not only more education, but good education as well; and if this is to be provided and greater equality in educational opportunity is to be created to promote social justice and the creation of a socialistic pattern of society more funds will have to be found for education… I recommend very strongly "financial concurrency" in education…".

Govinda and Bandopadhyay (2008) note that the proactive manner in which the GoI acted following the adoption of the National Policy on Education, 1986 stands out as a landmark in educational policy. This made the GoI the prime mover in designing and implementing development initiatives in EE. Direct involvement of the central government in strengthening infrastructure and delivery of EE allowed the states to act favorably.

Operation Black Board initiated by the Central government was focused on making single-teacher primary schools as two-teacher schools, with one of them being a lady teacher. Around the same time, the scheme for restructuring and reorganization of teacher education was launched. District Primary Education Program (DPEP) was launched in mid-1990s to universalize EE in selected districts of the country and gradually spread to 242 districts. DPEP helped reduce resource constraints in planning education, somewhat. Educational planning under austerity has been the characteristic feature of planning education in India. Perhaps for the first time, the districts in India were told that each district participating in the DPEP would be given about Rs 40 crores for a seven-year period (Tilak, 2002).

SSA, a major CSS, was conceptualized in 2000-01 as additional finances by the GoI over and above the existing state expenditures to invest in various components of education expenditure quality improvement and capacity building. The first decade of the millennium witnessed higher levels of attention paid to education both in terms of programs and financial investment in the country (Govinda and Sedwal, 2017). Educational facilities in terms of new schools spread, and official statistics recorded near universal enrolment of children in primary schools. Children from marginalized social groups became part of the mainstream education system and there was some effort towards gender parity.

SSA contributed to the expenditures of states, with more than 80 percent of plan expenditures being made out of SSA funds (Sankar, 2007). Central expenditure came to comprise a significant proportion of the EE spending (Figure 5.3), particularly in the poorer states with low revenue base (Figure 5.4).

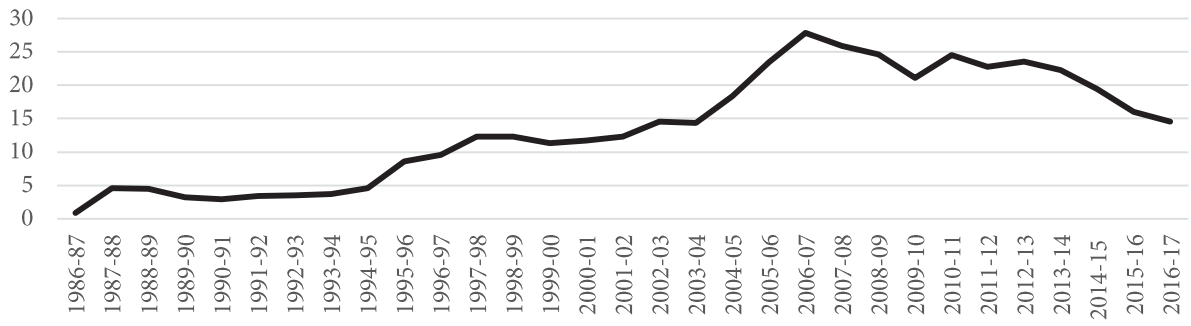
Equalization, however, was not achieved. Rather, as many researchers have reported, SSA grants per child have been consistently higher for the better performing states compared to the

lagging states (Sankar, 2007; Rani, 2016; Rao, 2017). Among other things, the requirement of uniform matching grants for states with very different needs as well as spending capacities, have placed the lagging states at a disadvantage.

A comparison of our estimates of financial requirements across states with horizontal distribution of fiscal transfers helps pinpoint the issue. The horizontal distribution of transfers across states in SSA (Center's Release) is presented along with the 13th and 14th Finance Commission devolution of shareable taxes (Table 5.1). The last two columns provide a measure of the relative need in terms of estimated total requirement and additional requirement across states. The following observations can be derived.

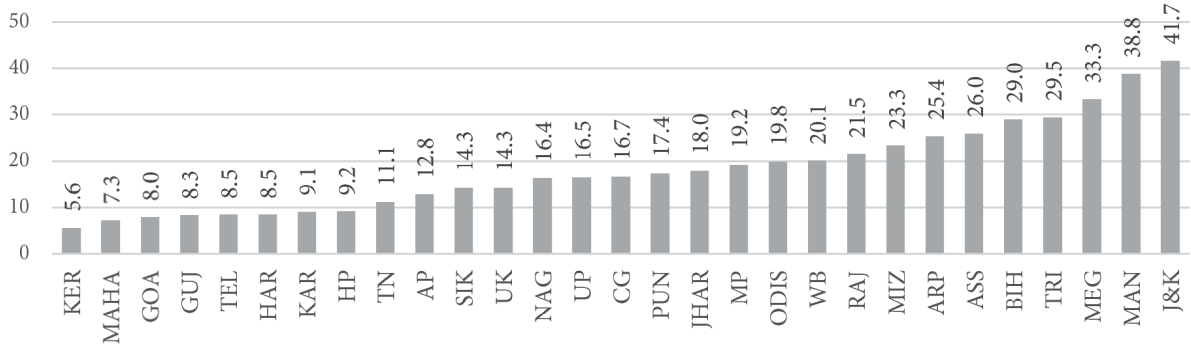
1. SSA shares do not reflect adequately the requirements, particularly, the estimated additional resource requirements in many of the lagging states. Additional requirement in Bihar has a share of 23.7 percent, but the state share in SSA financing is around 10.3 percent on an average. For Jharkhand, West Bengal, Assam, Madhya Pradesh, Odisha, Meghalaya – states that figure amongst the identified 16 states – the share in SSA transfers is smaller than our estimated requirement share. When we consider the lower overall allocation in SSA relative to the resource gap, that is, the size of the cake itself is much smaller than required, the problem gets magnified. If one of the main objectives of SSA is to facilitate additional funds from the Central government so as to reduce the disparity is

Figure 5.3: Trend in center's contribution to Elementary Education spending (in %)



Source: Analysis of Budgetary Expenditure on Education, MHRD; For 2015-16 and 2016-17, Finance Accounts and State and Union Budgets.

Figure 5.4: Center's contribution to Elementary Education spending across states, 2015-16 (in %)



Source: SSA & MDM websites.
Note: Calculated as GoI Release SSA plus GoI Release MDM as a percentage of Total EE Expenditure, 2015-16.

fiscal capacity to achieve UEE across states, it has clearly fallen short of the objective.

It is important to highlight that since SSA has been chosen as the vehicle for implementation of the provisions of the RTE Act, the budgetary allocations were made under the SSA and no separate budget has been provided under the Act. Distributional aspect and the quantum of funds allocated under SSA thus assume an added significance.

2. The horizontal distribution of Central taxes doesn't match the educational disadvantages of the states either. This is not unexpected. Jan Tinbergen had shown that there ought to be at least the same number of instruments as there are targets. The horizontal tax sharing formula based on a number of parameters – to reflect overall needs, to award good behavior, to incentivize states – is but one instrument by which to achieve economic and social equality. The instrument is thus blunt vis-à-vis educational disadvantages.[60]

3. There is a very high correlation between horizontal distribution of SSA transfers to states and the horizontal distribution of shareable Central taxes, both as per the 13th FC and 14th FC sharing formula (see correlation matrix, Table 5.2). It means that the inter-state allocation of resources in SSA has pretty much followed the general principles (such as population, differences in per capita income etc.) that the Finance Commission in its statutory transfers adopts. The acute regional picture of educational disadvantages – established by many studies – has not been specifically addressed through the SSA transfers. In fact, the horizontal distributions of shareable taxes as per the FC formulas are more closely correlated with the estimates of requirements than the SSA transfers (0.78/0.79 against 0.73).

Need for a Big Push

The 12th Five Year Plan, in the context of fund-sharing pattern between the center and states, noted: "while the revised fund sharing pattern may be adequate for most states, some states that are educationally disadvantaged with low levels of literacy, grossly inadequate school infrastructure and difficult terrain face a heavy financial burden to meet the RTE mandate and norms. A big push is called for to enable these states to come at par with other states." (GoI, 2013, p.64-65)

We take this argument forward to reiterate that a big push from the Center is of utmost importance for the identified 16 states. This is inevitable if all the regions are to fulfill the objective of UEE as per the RTE mandate. For universalisation to be feasible, the Center has to ensure that funds be available for implementable plans to be drawn up by the states. States can't make these plans in an atmosphere gripped by a "resource constraint mentality", as is currently witnessed with the tapering of SSA funds.[61]

The quantum of the fiscal transfer would need to be substantial, Rs 1,38,727 crores, or 1.01 percent of GDP of 2015-16. The present levels of SSA spending can hardly be called so. A comparison of additional resource requirement for Bihar of Rs 38,457 crore with the Center's allocation on SSA (all-India) of Rs 22,000 crore for 2015-16 helps put things in perspective. Table 5.3 charts the required additional fiscal transfer from the Center to the 16 focus states across the projection period, 2015-16 to 2019-20. The cumulative amount is Rs 8,51,520 crores (see Appendix Table A5.1, for state-wise projections). Figure 5.5 brings together the time path for additional requirements (all India), total requirement (all India) and the big push necessary for the 16 focus states, as percentage of GDP.

60. Rajan panel (Ministry of Finance, 2013) had recommended inclusion of outcome indicators on education, health, household amenities, female literacy etc. in tax devolution formula. The recommendation was criticized for its use of outcome variables rather than the neutral process variables.

61. Refer to Table 1.1, Chapter 1.

Table 5.1: Comparison of fiscal transfers and resource needs

	Distributional Share of SSA Central Release across States (percent)			Horizontal Distribution of Shareable Taxes (percent)		Horizontal Share of Resource Requirements for EE (percent)	
	2014-15	2015-16	Average of two years	13th FC	14th FC	Additional Requirements	Total Requirements
AP	6.4	3.1	4.8	6.9	4.3	2.1	3.1
ARP	1.4	0.8	1.1	0.3	1.4	0.2	0.3
ASS	4.1	4.7	4.4	3.6	3.3	5.3	4.0
BIH	9.0	11.7	10.3	10.9	9.7	23.7	13.9
CG	3.9	2.9	3.4	2.5	3.1	3.0	2.8
GOA	0.1	0.0	0.0	0.3	0.4	0	0.1
GUJ	3.3	2.9	3.1	3.0	3.1	1.3	4.5
HAR	1.8	1.6	1.7	1.0	1.1	0	1.2
HP	0.5	0.6	0.5	0.8	0.7	0.3	0.7
J&K	2.1	6.0	4.1	1.6	1.9	1.8	1.7
JHAR	3.2	2.6	2.9	2.8	3.1	4.6	3.3
KAR	2.8	1.9	2.3	4.3	4.7	2.9	4.2
KER	0.9	0.6	0.8	2.3	2.5	0	1.5
MP	6.2	7.4	6.8	7.1	7.5	8.9	7.2
MAHA	2.4	1.9	2.2	5.2	5.5	4.7	8.0
MAN	0.9	0.9	0.9	0.5	0.6	0.5	0.4
MEG	0.8	0.8	0.8	0.4	0.6	1.3	0.8
MIZ	0.6	0.4	0.5	0.3	0.5	0.1	0.2
NAG	0.9	0.4	0.6	0.3	0.5	0.2	0.3
ODIS	2.8	3.8	3.3	4.8	4.6	6.3	4.5
PUN	1.5	1.4	1.4	1.4	1.6	0	1.3
RAJ	10.3	9.0	9.6	5.9	5.5	6.8	6.0
SIK	0.2	0.2	0.2	0.2	0.4	0.1	0.1
TN	5.7	3.8	4.7	5.0	4.0	0.8	3.5
TEL	3.4	1.0	2.2	--	2.4	1.6	2.1
TRI	0.8	0.8	0.8	0.5	0.6	0.8	0.5
UP	18.7	23.4	21.1	19.7	18.0	12.4	15.2
UK	1.0	1.0	1.0	1.1	1.1	0.6	0.9
WB	4.0	3.9	4.0	7.3	7.3	9.6	7.7

Source: SSA; Reports of the 13th and 14th Finance Commissions, GOI.

Table 5.2: Correlation matrix: Horizontal share of fiscal transfers and resource needs

	SSA	13th FC	14th FC	Additional Requirement	Total Requirement
SSA	1				
13th FC	0.94	1			
14th FC	0.93	0.99	1		
Additional Requirement	0.73	0.78	0.79	1	
Total Requirement	0.87	0.94	0.95	0.90	1

5.3 Finance Commission's Equalisation Transfers

The RTE Act lays down among the duties of the Central government to refer to FC, examination of "the need for additional resources to be provided to any state government so that the state government may provide its share of funds for carrying out the provisions of the Act" (Section 7).

In view of the findings presented here, we urge the 15th FC to examine in detail the resource requirements and suggest suitable specific purpose grants so as to reduce the imbalances and address the requirements of universalisation.

Two sets of factors make the role of the FC particularly pertinent. As discussed above, the Center's intervention has played an important part in augmenting the supply side of educational provisions, despite certain limitations. The recent trends in Central spending on education, however, signal a reversal in financial concurrency.[62] Also, going by the slowdown in growth and tight revenue situation at the Central level (2018-19) plus self-imposed fiscal discipline, austerity in funding CSSs is highly likely. The role of the FC in recommending a specific purpose grant thus assumes a greater significance. Secondly, there is an institutional vacuum in the absence of Planning Commission, a body that would set sectoral planning objectives and direct plan grants. FC needs to take a comprehensive view of the sectoral needs as well as spending patterns and priorities of the states.

In the past, the 12th FC has recommended grants towards equalization of educational expenditures for eight states (Assam, Bihar, Jharkhand, MP, Odisha, Rajasthan, UP and WB). The Commission stressed the necessity

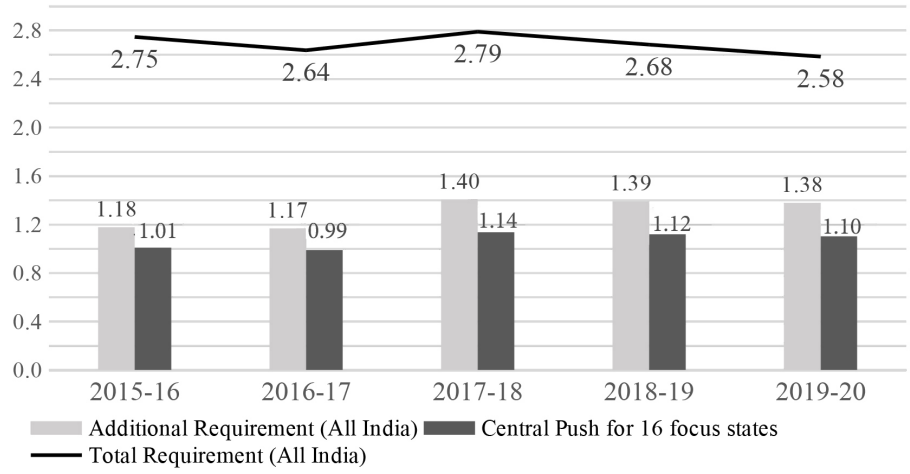
Table 5.3: Required additional transfer for financing RTE: 2015-16 to 2019-20

	2015-16	2016-17	2017-18	2018-19	2019-20	Cumulative Amount
Additional Requirement at 2015-16 prices in 16 focus states (in Rs Crores)	138727	145795	178673	188778	199546	851520

Note: Estimates include anticipated wage hike due to 7th Pay Commission in 2017-18; GDP is assumed to grow at 7.32 percent annually in 2018-19 and 2019-20.

62. Kumar (2018) notes the reversals. There was a period around 2005, he says, when it seemed like a political will existed for the first time in many years to widen the scope of education and to improve its quality. And it is in that context RTE seemed just round the corner. But it took another five years. Finally, when it came in 2009-10, one could see that the political will that had somehow accumulated in the state machinery was already waning. This happened in two ways. After the approval of the law, litigation against it started almost instantly. One continues to hear that influential lobbies and individuals want changes in structure and scope. The journey has been quite difficult for this law. Secondly, the early momentum of its funding by the Center has also been lost. What propelled the law in becoming an Act was the financial resources made available by SSA in the early 2000s. From about 2010-11 onwards and certainly from 2015 onwards, we have seen how the Center is keen on passing on the responsibility to implement this law to the states.

Figure 5.5: Resource Requirement for RTE (as percentage of GDP)



to focus on two critical areas of deficiencies – education and health. The grant amount of Rs 10,172 crores was to be utilized only for the respective sector with minimum conditionalities governing the release and utilization of the grants (GoI, 2004). The normative used was the group average spending while the actual per capita expenditure measured the distance from it. It may be pointed out here that while the group average of per capita expenditure might be a reasonable benchmark for equalization across states, it is not a suitable benchmark for normative expenditure requirement. Existing expenditures cannot be a suitable benchmark for what is needed.

The 13th FC recommended grant for EE specifically to the tune of Rs 24,068 crores, covering all the states (GoI, 2009a). This was supposedly based on calculation of need, though we seriously think that the requirement was again grossly under-estimated. The grant was to enable the states to meet the requirement of higher matching share for SSA allocations. A condition was attached to the grant. It was to be available if the growth of EE expenditure was at least 8 percent such that states would have an incentive to raise spending. One of the concerns surrounding Central spending has been about states becoming overly reliant on Central funding or not raising their own spending on education. Design of intergovernmental transfers through the mechanism of matching grants or incentivizing the states through conditionalities has attempted to steer the spending behavior of the states in the desirable direction, with varying degrees of success.[63] Unlike critiques of conditional grant, we don't find the proposition of creating reasonable incentives offensive.

The 14th FC rather than improving the mechanism in favor of equalization, has not provided any specific purpose grant for education to States. The emphasis of the 14th FC has been to move from conditional transfers to unconditional transfers; it has raised the states' share in divisible pool of central taxes (GoI, 2014). Specific purpose grants have been left to the discretion of Central Ministries. The Center in turn has cut back on its allocations on central schemes, to create more space for the higher tax devolution of Central taxes to states. The stagnation in central spending on major CSS which had begun within a few years of

63. If central transfers substitute states' own expenditure on education, resource envelop remains the same. In case of SSA, however, there is no evidence of substitution. In Bose and Bera (2019), we test the impact of Center's contribution for SSA on the States' own expenditure on EE, after controlling for States' own revenue receipts and priority for education. The regression result for 2005-2015, suggests that Central transfers in the form of SSA has played a statistically significant positive role in raising the States' own expenditure on EE for the 16 focus states.

the enactment of RTE gained greater legitimacy in the 14th FC period. As a result, the share of Central spending in overall EE expenditure has fallen to the levels of early 2000s (refer to Figure 5.3).

How have the states responded to the higher tax devolution? In a recent study, Amar Nath and Singh (2019) have compared the additional gains from higher tax devolution in the 14th FC period, with the additional burden due to the withdrawal of certain Central schemes and the change in the sharing pattern of major CSSs calling for greater contribution from the states.

In several of our focus states – Chhattisgarh, MP, Odisha and West Bengal – the additional burden as defined above is higher than the gains in tax devolution. The authors question the assertion of greater autonomy for the states, which claims that the states have received additional resources in the form of tax devolution and are therefore free to decide the priorities.

In Table 5.4, the growth in tax shares and overall revenue receipts are presented for the eight focus states, among the general category states. It is evident that the growth in expenditure on education (including sports, art and culture) in the last two years has been much lower than the growth in share of central taxes to states or even the growth in revenue receipts of the states. Further, for most of the states, pre-14th FC growth in expenditure on education is comparable or even greater than the trends in the first two years of the 14th FC award period. Only UP is a noteworthy outlier. There doesn't seem to be a considerable increase in fiscal space for these states, and neither have the allocations been any more favorable to educational spending in these lagging states.

This is not to argue against greater fiscal autonomy for the states per se, which is an important principle. But education and health are special cases. The right to education as a fundamental right is non-negotiable and demands a high priority. It is not only a moral obligation of various governments to uphold it, it is legally enforceable with both the states and the Center being jointly responsible for compliance. To the extent that the states have enacted the RTE there is already a pre-commitment, which has to be fulfilled. Financial concurrency, alongwith a specific purpose grant, and a need-based approach where initiative is with the state to decide the actual planning and implementation can go hand in hand.

What is needed of the 15th FC?

The learnings from the past Finance Commissions, the historical experience of Central push in education and assessment of the resource needs in view of the present status of RTE provide the background for recommendations of the 15th FC.

- Since equalization is the primary mandate of the FC, it would be natural for the 15th FC to address the inequalities in provision of EE, which is a merit good plus a core Constitutional guarantee under Article 21A, the Right to Life and the RTE.
- The 15th FC needs to begin from a normative benchmark for resource needs on EE, for which we have presented estimates. The normative benchmark and actual expenditures show a yawning gap in case of several states. For equalization "around a reasonable norm as per the RTE Act" to be feasible for all states, there needs to be a big push for these states. Addressing inequalities in education would be tantamount to addressing inequalities across regions/states.
- Having established the need for additional resources, it becomes necessary to ask what are the possible avenues or instruments. We suggest a specific purpose grant for EE, with certain guidelines. While the CSSs have been instrumental in enhancing the resource base of the states

Table 5.4: Comparison of annual growth in revenue and expenditures across periods

	Devolution of Central Taxes to the State (percent increase)		Revenue Receipts (percent increase)		Expenditure on Education, Sport, Art and Culture (percent increase)	
	Pre-14th FC[1]	14th FC[2]	Pre-14th FC[1]	14th FC[2]	Pre-14th FC[1]	14th FC[2]
Bihar	7.7	26.4	14.7	16.2	7.6	8.7
Chhattisgarh	7.7	53.8	13.4	18.9	30.0	9.8
Jharkhand	7.7	44.1	13.1	22.3	17.7	17.9
MP	7.7	39.6	12.3	18.0	22.1	14.6
Odisha	7.7	32.9	13.9	14.4	16.3	9.7
Rajasthan	7.7	30.5	17.0	9.3	22.3	12.5
UP	7.7	28.4	15.1	15.3	7.5	24.3
West Bengal	7.7	35.6	12.7	17.1	10.2	6.9

Source: CAG, Finance Accounts
Note: [1]: Average of YoY Growth in 2013-14 and 2014-15; [2]: Average of YoY Growth in 2015-16 and 2016-17

and increasing access, equalization has not been achieved. The horizontal distribution has not been adequately progressive; and the quantum has always fallen short by a substantial margin. Moreover, the recent trends in Central spending on education, in our opinion, signal a reversal in financial concurrency. The states' responses to the 14th FC increases in devolution share provide further reason for the 15th FC to consider specific purpose grant as a push for UEE.

- The push has to be big enough and immediate. We would warn against neglecting important components, spreading resources thinly, as well as shifting goalposts for later dates.[64] Resources are necessary to fill the teacher gaps, bring about a parity in pay around a decent salary norm, run teacher education institutions and teacher training programs, provide for an adequate management structure, provide for maintenance of schools, learning resources and students' entitlements, etc. Besides adequately providing for those who are in public and aided schools, there is investment required for inclusion of OSC. For the 16 focus states with largest resource gaps vis-à-vis their revenue base, the additional requirement is of a substantial magnitude amounting to 1.1 percent of GDP on an average every year.
- An EE grant to the 16 states for a period of five years would assure them the quantum of resources available to draw up implementable plans over a medium term. In the absence of five year plans, there is great uncertainty in Central transfers for social sector expenditure. Taking the argument further, it is necessary to build a consensus for continuity of mandate across FCs for financing education. Much of the above arguments hold for the health sector as well.

5.4 Financing Additional requirement

The additional budgetary requirement for UEE can be raised in a number of ways. Tax-GDP ratio in India is low compared not just with developed countries, but also countries with similar levels of per capita income. Economic Survey (GoI, 2016) has clearly argued that India's spending and tax ratios are the lowest among economies with comparable purchasing power parity adjusted GDP per capita. It accounts for the low spending on health and education, a mere 5.1 percent of GDP compared to emerging market economies average of 7.5 percent and

64. See Bose and Sardana (2019)

OECD average of 11.6 percent. Raising the tax revenues is essential for sustained investments in social sectors.

Some gains in tax collections may be expected with the Goods and Services Tax and direct tax reforms, though the magnitudes are not clear. TMC had assumed increases in tax buoyancies (measured as responsiveness of tax collection in response to GDP growth) with tax reforms such that tax GDP ratio would rise by 2 percent of GDP by the end of the projection period.[65] The expected increase, however, wasn't realised; the Committee's forecasts proved to be overoptimistic. Given the wide-ranging tax reforms underway today, especially in indirect taxes, historical tax buoyancies are not very useful in forecasting future tax revenues. Thus, forecast of tax and non-tax revenues are not presented here. Suffice it to say that there is both need and scope of raising tax (and non-tax) revenues so as to raise expenditure of EE.

Besides revenues from gross budgetary support, it may be pointed out that whenever there has been a political will and effective public pressure, new avenues of financing have emerged, especially at the Central level. In the 1980s and 1990s, funding from multilateral institutions at a concessional rate was tapped in a big way through large-scale programs such as District Primary Education Program, Operation Black Board and Mahila Samakhya. After the turn of the century, primary education cess, which is essentially a tax on tax, has provided ring-fenced revenues for SSA and MDM. Its success has prompted the central government to extend it to other sectors within education, and more recently to the health sector. These opportunities of securing additional support lie much more with the Center than the states. The bottomline is that finances can be raised, if the government, at the Center in particular, wishes to.

5.5 Intergovernmental Relations: Towards Greater Trust

In this Chapter, the focus thus far has been on the magnitude of resource requirement and how that can be actualized for all states. While the provisioning of resources is necessary, this by itself is not sufficient to ensure the desired reform of the public education system. Recalling Chakravarty (1987) it is important to factor in the impediments for reforming the public system if we are to seek behavioral changes that could lead a plan to the desired goals. Three kinds of impediments in implementation are discussed. The first set of issues relate to impediments in financial flows across various levels that affect how well and effectively finances can be utilised. Based on available research, the discussion summarizes what is needed for better delivery and greater accountability of financial flows. The next set of issues relates to impediments (other than resources) to school functionality (section 5.6). The discussions underline the need for simultaneous reforms on various fronts for better public services.

In the context of Center-State financial flows, the issue of centralizing tendencies of CSS has been raised often. Guhan (1995) noted that a combination of paternalistic, populist, and bureaucratic factors explains the proliferation of CSS in numbers and amount. Such outlays came to as much as 48 percent of normal central assistance for state plans and to 33 percent of all central transfers on the Plan account. Priorities lose their meaning and it becomes control by the Center. There is need to find a balance between national priority and federal autonomy. Central push is required to forge the long-range development agenda with a view to equalization. At the same time, state and local governments are closer to the people than the center. Most welfare provisions lie in the state domain and onus to develop effective implementation mechanisms should lie with them. Both these objectives are

65. TMC had assumed additional budgetary resources of 4 percent of GDP – 2 percent more from tax revenues and 2 percentage coming from non-tax revenues.

important. Within the overarching framework of shared objectives, there has to be sufficient freedom and autonomy, and more equal power-sharing.

The experience of SSA gives several pointers on how best to proceed on a more equal footing.

- **Norm-Based Allocation and Need-Based Planning**: Researchers have noted that under SSA, Center-State relations are governed essentially by MHRD guidelines and state-district relations are governed by the dictates of the concerned state office. Such concentration of power is not only evident within the SSA framework but also within the structures of the Education Department, where junior functionaries often complain of an overload of programs that are pushed down the lines without consultative process (Mukhopadhyay, Ramkumar and Vasavi, 2017). It prevents the adoption of implementation approaches that emerge from the needs elicited from lower-level institutions and their functionaries. At the school level, there has often been a conflict between norm-based allocation and the rhetoric of need-based planning. Kapur and Mukherjee (2016) note in the findings of a study of 100 government schools in Nalanda, that schools are constrained to provide inputs (school grants) specified in the guidelines, whereas the requirement of the schools were quite different. There is a mismatch between what the schools require and what comes to them as tied grants. One suggestion is to provide untied block grants to SMCs (with checks and balances in place) so as take care of diverse needs. While the upper tiers of the government could identify the broad areas of expenditure taking into account school needs, they must not interfere with micro-planning. A broad autonomy in spending decisions with adequate checks and balances is essential.

- **Need for an Integrated Administrative Mechanism:** For realizing program-specific objectives, SSA created parallel bureaucratic structures, bypassing the regular state bureaucracy. It resulted in lack of convergence with existing state departments, addition to power lines and further bureaucratization, lack of role clarity and multiple reporting structures. For instance, the Education Department has to permit the teachers to attend the teacher training organized under SSA. In some cases the permission is not given and the funds allocated for training remain unutilized. Reddy and Reddy (2016) point out in the context of Andhra Pradesh that many of the officers working in SSA are from non-education departments which creates tension between the Education Department and the SSA office. There is a case for convergence here for having an integrated structure that can encompass both the regular working of the department and the different other interventions such as SSA, work of non-government organizations, etc.

- **Sovereignty of State Plans:** The structure of SSA was conceived as a demand-driven program. However, state plans are routinely downsized by the Center. The AWP&Bs are approved after negotiations between the Center and state governments with the final decision taken by the SSA's PAB at the Central level. This is ostensibly done to ensure standardization of education delivery and supervise implementation by the states. It often results in slugfest between central government priorities and perceived needs of the states. As noted in Chapter 1, there have been substantial differences between state proposals and the outlays approved by PAB and GoI allocations, every year between 2010-11 to 2015-16. If SSA is essentially a demand-driven program, then it should be left to the states to decide on the final outlay of the program, rather than the Center pruning the state plans (Mukherjee and Sen, 2007). A related point is the complete lack of synchronization in timings between AWP&B meetings and the budgetary process. In an important audit observation, CAG (2017) notes that the Government of India (GoI) budget provisions are not based on the PAB's approved outlay as the

time schedule for approval of outlays by PAB are not in alignment with the schedule of budget exercise of GoI.[66] A greater synchronization is required such that the allocations reflect the state plan needs.

- **Predictability of Financing:** The predictability of financing is essential for a normative framework to be an implementation plan. Numerous studies have pointed to the delays in fund flows, as most of the SSA funds arrive in the last two quarters. Delay in the release of funds is one of the principal causes for underutilization of financial flows. This is true as much for the Center as the states' contributions. There are so many instalments of fund flowing through one year, it requires the system to work more in managing the fund flow rather than focus on service delivery (Jha and Parvati, 2016). The financial management definitely needs to be improved. CAG performance audit (2017) verifies occurrences of short release of funds as much as underutilization and the two are not unrelated. Further, the issue of underutilization is intimately related to the vacancies and shortage of staff, among other things. Lack of proper staff at all levels hampers various activities including implementation, planning, monitoring, reporting, training, etc.

- **Timely Updation of Norms:** Whereas norm-based financing is perhaps unavoidable, it is necessary to update the financial norms regularly. Most of the financial norms are frozen in time, leading to curious situations for state allocations. CAG (2017) audit observations notes: "Records of the Mission Director revealed that Chhattisgarh Text Book Corporation supplied text books to 26,27,818 number of children (Class VI to VIII) during 2012-13 to 2015-16 at the price ranging from Rs 256 to Rs 317 per child against the ceiling of Rs 250 per child (norms prescribed in SSA Framework). This resulted in extra expenditure of Rs 7.70 crore."Since CAG's task is only to look at compliance with norms, the audit observations put the blame on the states, whereas the problem is with the norm itself. The MHRD acknowledges that many of the norms are inadequate. In most states, except UP where the print run is massive, there is a cost over-run on textbook production. A periodic review of various financial norms is a must and the Center shouldn't shy away from revising these norms, citing SSA as only an additionality.

  On the issue of financial norms, one would go further to say that the SSA should use a reasonable teacher's salary norm rather than the range of salaries from Rs 3,000 per month to Rs 40,000 per month that exists now. The complicity of the GoI in creating the disparity of teachers' salaries across states cannot be ruled out. Like most other heads, if the SSA had encouraged a reasonable salary norm, the conundrum that many of the states face now – with frequent strikes and protests by teachers for pay increase and regularization – and a disgruntled and divided teacher cadre could have been avoided.

- **Decentralized Management:** Under the RTE, SMCs have been given multiple tasks such as monitoring the working of the school, monitoring the utilization of the grants and preparing School development plan. While the decentralization of authority to the local level in the context of education has been highlighted since National Policy on Education, 1986, field evidence shows that these bodies have remained on the periphery

66. Ministry of Finance issues Budget Circular in the month of August/ September for furnishing the Budget proposals to Ministry of Finance by October/November every year. Accordingly, MHRD issues circulars to the states for forwarding their AWP&B. As per Para 50.1 of Manual of Financial Management and Procurement, the Budget process starts from 1 January every year with the preparation of AWP&B by the states and approval by PAB by 15 April. As the budget proposals are submitted by MHRD in October/November to Ministry of Finance, the same are ad hoc in manner and not based on the PAB approved outlays which are finalised by April of succeeding year.

of decision making. Lack of commensurate financial support and power is one concern. In contexts where parents are predominantly from underprivileged social backgrounds, the social, economic and political distance between teachers and the community is large. It stands in the way of realization of accountability of teachers to the community. The de facto role of the SMCs is limited to construction and maintenance of school building, and identifying OSC. Wherever there's sharing of the spoils, the moral obligation to ensure functioning of the system is compromised. In such circumstances, all collude to ensure a limited presence of SMC in the affairs of school, though the paperwork would be near perfect. In some schools, SMC members do take independent initiative and also face conflicts with school staff. Many groups working in education have been encouraging and organizing the involvement of SMC members in routine school activities, teacher attendance and annual events so that a relationship of trust and responsibility is formed. It is obvious that these structures would not be activated in the spirit of RTE unless there's clear political will and sustained effort at social mobilization. Sinha (2013) notes that while decentralized management with capacity development in local communities under the umbrella of PRIs is needed to build trust, efforts are needed to ensure that this does not mean the monopoly of a few elected representatives on financial resources and selection process (local capture). Broad-based democratic participation through various community organizations requires to be a part of the framework and transparency at the local level.

Equally, in the enterprise of educational decentralization, while several school-related decisions and academic choices need to be decentralized right up to the school level, the Center should not disappear or abdicate its own responsibilities towards UEE (Majumdar, 2017). The central party – be it the Center or the state – will have to figure out what kind of resources are necessary to actively begin to develop capacity of community-based organizations. Or else, these committees would remain as paper committees causing further institutional proliferation. The case of MDM in West Bengal is cited where the state administration and local actors acted in unison. To quote: "While there has been a genuine push from "this New Center" for local actors to own up this program and the associated responsibilities, the former has also adopted several innovative strategies to ensure local accountability (p. 70, Majumdar, 2017). "

- **Strengthening the Database:** One important requirement for effective planning, implementation, monitoring and supervision is sound database. Data on school mapping is incomplete, as has been reported in minutes of various PAB meetings. Data on teacher composition and their respective salaries for each state is a closely guarded secret and not available. Sinha (2013) astutely notes that the public information needs of social development are quite different from the Official Secrets Act that a regulatory colonial bureaucracy needed. Also, data needs public scrutiny. The operationalization of the DISE has been helpful in monitoring progress under SSA, but as different surveys show, the database needs continuous improvement.[67] For many aspects of data on EE, there are conflicting numbers. The widely varying estimates of OSC makes it difficult to obtain an accurate picture of the problem of dropout and non-enrolment. Free flow of authentic information is central to transparency and accountability of the system.
- **Accountability of the Government:** There are a couple of processes that ought to be added on a regular basis to the already existing ones to ensure accountability of the governments, particularly at the top. Performance audit by the CAG, which involves the government responding to

67. Refer to the discussion on DISE data in Chapter 2.

the audit observations made by CAG, is an important mirror on implementation and must happen regularly. The role of the CAG is crucial as it can audit performance both on the financial and non-financial front. Secondly, the governments – both at the center and the states – should present before the Parliament and State Assemblies a status report of the progress of RTE implementation every year. This would encourage informed discussion and debate, help focus political attention and shape public discourse. Both these measures may be made mandatory through amendments to the RTE Act, just as was done in case of the Fiscal Responsibility and Budget Management Act, 2003. Also, the National Advisory Council or State Advisory Council should guide and oversee the financial allocations for RTE on an ongoing basis. Estimation of resource requirement, as we have stressed, is not a one-time exercise.

5.6 Improving the Functionality of School System

There are two broad impediments that impact the education system. A set of factors affect the functionality of the schools, the other set affect the quality of classroom processes.

5.6.1 The *functionality of the system* could simply be understood as schools that run regularly and teachers are present and teaching.[68] With the large scale exit of children from government schools in many regions in the recent years, issues of functioning of government schools has acquired a far more serious urgency. Would they survive as a significant component of mass education? Paradoxically, just when for the first time in independent India's history, enrolment of all children had become possible, public schools appear to be at their weakest point.

One of the most crucial factors that affect the functionality is the nexus of arrangements of teachers and school administration with local political leadership. These arrangements make the role of headmasters and inspection by the bureaucracy ineffective as they cease to play their role of ensuring that schools are running as per expected schedule. Senior functionaries cite political linkages of teachers and express their inability to initiate disciplinary action against them for neglect of duties. There are instances of schools with 10 students and four teachers but no action is taken on either increasing the strength of students or shifting teachers.[69] Given the interwoven political arrangements, school administration is unable to rationalize teacher posting, attachments and transfers. Mukhopadhyay, Ramkumar and Vasavi (2017) go further to say that both location of schools and deployment of teachers are subject to pressures from political powers and may lead to distortion of planned objectives. The absence or inadequacy of teachers in remote areas largely stems from this. Failure of governance translates to sub-optimal functioning of the schools. [70]

One could say the interference of the political class in the functioning of the bureaucracy is not new or not only present in the Education Department. However, there's a difference when compared to other departments since the school

68. For functionality of schools, Govinda & Sedwal (2017) list four indicators: (i) No compromise on resources for basic physical and academic facilities; (ii) Operates for the specified number of days and specified hours each day; (iii) Competent teachers with subject knowledge; (iv) curriculum focus is on teaching-learning processes, not syllabus completion.

69. Many years ago before the current phase of exit from public schools became apparent, a Block Education Officer in Dewas District of Madhya Pradesh shared that he was unable to shift one teacher from a middle school to a primary school where there were more students, even though both were located in the same compound.

70. As Leclercq's (2003) field study of public school system in Madhya Pradesh back in the early 2000s revealed many villages have multiple government schools such as Education Guarantee Schools, Kanya Shala, Primary school and Upper Primary School. All of them are sub optimal, with the pool of resources divided across these multiple schools. Many are a response to populist pressures, where schools are opened without allocation of sufficient staff, often by removing some teachers from one school and placing them in the new school as 'attached' staff. This situation could continue for years. The structural issue of fragmentation of schools makes functionality of the system more complicated and difficult. Sub optimality is inherent in such a system.

network is the most visible and deep, reaching everywhere. Also, given the size of the school bureaucracy the number of favors that could be negotiated is very large.[71]

A related issue that affects functionality is the amount of non-teaching duties expected from the teachers. It is not uncommon to find that out of three teachers posted at a school, one is present, the other is called to the block office and the third hardly attends. It is for this reason when surveys try to capture the effective teaching time spent with students is found to be low. Some of the non-teaching duties are related to surveys or government campaigns such as opening of bank accounts for all students. In any year, there's a fair number of such campaigns. The other is related to large amount of routine clerical work and response to official dak. Clerical work is related to entitlements of scholarships, midday meal, textbook, uniform, cycles etc. The school bureaucracy totally underestimates the clerical work required and ignores IT processes that could make this less burdensome. We know of many teachers, being "attached" to high schools that are also pay centers, to work as clerks. The paperwork needs to be cut down and streamlined drastically such as not to take the teacher away from the classroom. One may also consider providing schools with clerical staff. Given the rising trends in paperwork in recent years with the burden of standardized assessments being increasingly added – the necessity of an office person may need to be institutionalized.[72]

At present, the self-identity of the teacher is more of a public servant and less of a professional teacher. Teachers are really quick on the roles expected of them as public servants whether it be campaigns, paperwork at the school, Block Level Officer's work for Election Commission, attached clerks at the block office or high school. These jobs are informally looked upon with pride and they receive positive feedback for the work accomplished. On the other hand, the reinforcements and signals that could create an identity of a professional teacher is largely missing.

All of these factors work together to create demotivated school teams and greatly undermine the school leadership roles of the head teacher or other senior teachers. School teams have to work in a reasonable cohesive manner for the school to function. One suggested way, to create school teams for public system, is to appoint teachers to specific schools and not to the general cadre and make the school responsible to the PRI at the village and town level (Govinda & Sedwal, 2017, p.24). Even within the present system, where teachers are not appointed to particular schools, formation of stable school teams is feasible. It implies having adequate staff for each school and restoring the power and responsibility with the head teacher for regular school functioning. In either case, some realignment of political power is required for public systems to deliver.

Turnarounds are possible. A case in point is the turnaround of a girl's high school in a small town, which the authors closely experienced. The strength in the school increased from around 60 students to 400 students within a year. The head teacher and a senior teacher organized the building of the compound wall; ensured the distribution of books, uniform and scholarship; ensured that the time-table drawn up was followed by other teachers; any outside pressure was tackled by the head teacher through her own contacts in the town. The above is an example of a lone struggle by a school, which shows how reverse flow is possible (even within the existing system). A more systematic change is the recent effort by the Delhi government to revive the government schools. There's been a concerted attempt by the party in power towards reform focused on ensuring school functionality. The approach hasn't been one of cynical teacher-bashing,

71. Mukhopadhyay, Ramkumar and Vasavi (2017) note that the education department cadre as a percentage of the entire state cadre has grown to become around 40 percent in the recent years.

72. We estimated the additional cost of employing an office person per school (with a monthly salary of Rs 15,000) at Rs 20,620 crores or around 0.14 percent of GDP (2015-16) at the all-India level.

but systemic response of a kind. It presents possibility of improvement. The outcomes may be unknown, since building social trust is a long and complicated process. But *political will is an essential ingredient for it*. [73]

5.6.2. The next set of factors that are crucial to the functioning of the system relate to *the quality of classroom processes*. Revision in curricular processes has been a source of change in recent times. The National Curriculum Framework (NCERT, 2005) made important strides towards the objectives of connecting knowledge to life outside the school and ensuring that learning shifts away from rote methods. And, yet the reform has touched only one segment without the synergy required for the systemic transformation. As Govinda & Sedwal (2017) argue, building a vision of change through curriculum revision and revising textbooks would not be enough. This has to be accompanied by upgrading teacher competence to changing classroom process in tune with the curricular vision while keeping in mind the diverse backgrounds and learning strengths of students. It also requires reform of student assessment practices. Achieving such changes requires coordination between SCERTS, DIETs, Boards of examinations so that they carry a common vision of school education. Unless this synergy is brought out by aligning expectations of the textbooks with assessment practice and teacher competency, change in classroom processes will not take place.

Often responding to new perspectives, mechanical measures are drawn up that undermine the spirit of the process. Continuous and Comprehensive Evaluations (CCE) is a case in point. CCE as expected by the RTE was to aid learning and was never intended as to be an elaborate filling of forms that are incomprehensible and meaningless for the teacher. The spirit was lost and CCE has been thrown out and RTE is blamed for the mess. This demonstrates how the lack of synergy and building of trust among institutions undermines any attempt at reform. A more cohesive plan is required for curricular revision process.

One central problem of today's education impasse is the commonly held view of a teacher as the implementer of a top-down package rather than an autonomous professional. Supposing we caricature the two ends of a spectrum as one that of a fully autonomous teacher who decides every aspect of the classroom process she undertakes and the other of a teacher who is scheduled to take each sub-section of the textbook at the particular time as planned by the bureaucracy and in the manner dictated by them. Given the intrinsic nature of the learning process and the diversity of students and their social backgrounds, the school education system should have moved more and more to the autonomous end of the spectrum. However, concern over students not learning has pushed the system towards the bureaucratically dictated end. The situation of learning levels has not improved. The trust in the teachers has been undermined. Outmoded management practices that are not followed by school bureaucracies elsewhere have been adapted. If we move towards granting teachers more autonomy, building trust, increasing subject competency we could achieve better learning outcomes. At present, there's fear among education managers that with greater autonomy people would misuse the system and report in a fraudulent way and things will not improve. It is important for a plan to build in some checks and balances such that administration feels confident to run system that gives much greater autonomy to the teacher.

While macro assessments – whether by NCERT or ASER – inform us of overall quality of education and the need for urgent action, this is often confused with assessment for learning. The latter is more nuanced and context specific. Most importantly, assessment for learning is not to test children to categorize them for a macro view but to aid and enhance what they already know. This is feedback

73. UEE is thus not simply a policy enterprise; it is a political enterprise shaped by crosscurrents of politics at various levels notes Majumdar (2017).

for the teacher. However, what is happening now is completely different. In our collective lament over the national situation that does not show any improvements in the past decade, we appear to be falling in the trap of teaching to the test. Many educational administrators and researchers believe that school test results will spur a healthy competition and provide clear targets for teachers and this therefore would be a change for the better. We appear to forget that in the past, such testing and grading children and then suggesting remedial teaching has usually been turned into a farce. The learning outcome push is heading in this direction of the tail wagging the dog. Teachers are interpreting this move as 'teach for the test'. State textbooks are being changed to suit the standardized assessments. Assessment for learning is very different and we need to rethink this headwind.

Finally, the biggest challenge in improving quality of education is to seek a change in classroom practice and in teacher belief regarding marginalized communities. A reality of today's classrooms is the socio-economic divide between the teachers and students, with teachers questioning the educability of students from disadvantaged backgrounds. Creative forms of on-site support along with contextualized teacher workshops have to be devised. A greater effort is required for real dialogue with teachers (rather than a blame game). In the last few years of SSA, training fatigue has become obvious and state governments have rushed through with standardized trainings to be RTE compliant. New ideas are required in this regard.

To sum up, we hold that while the provisioning of resources is necessary, it is insufficient to ensure the desired reform of the public education system. There needs to be a special effort to make the public school system functional and to win back the trust of people. Finance is an instrument in this, not the only one. Political initiative is required for any program of action that seeks to tackle systemic issues. The complementarity of various roles is crucial if we are to ensure reasonable working. Cynical "teacher-bashing" is not the answer.[74] Social policy that recognizes the centrality of education as public good must be made a priority and finance seen in relation to it.

74. Teachers are blamed for the general lax and pathetic atmosphere that prevails around government schools. It is assumed that it is their lack of morality rather than the overall systemic factors that is responsible for the state of affairs.

Appendix (Chapter 5)

Table A5.1: Additional Requirement in the Focus States, 2015-16 to 2019-20 (Rs. Crores)

State	2015-16	2016-17	2017-18	2018-19	2019-20	Total
BIH	38457	39251	44714	46154	47736	216312
UP	20107	22440	30946	34516	38316	146326
WB	15502	15877	18959	19412	19870	89619
MP	14374	15591	19638	21102	22682	93387
RAJ	11069	11960	15264	16469	17731	72493
ODIS	10220	10549	12502	12898	13306	59476
JHAR	7480	7962	9758	10435	11122	46759
CG	4873	5248	6736	7204	7708	31769
ASS	8648	8795	10428	10641	10875	49387
Other SCS states*	7995	8123	9727	9946	10201	45992
Sum	138727	145795	178673	188778	199546	851520

Notes: * Includes J&K, Meghalaya, Tripura, Manipur, Nagaland, Arunachal Pradesh and Mizoram All estimates are in 2015-16 prices.

6

Conclusion

In the age of science, there can be no greater risk than a policy of drift and niggardliness in education.

(p. 892; GoI, 1966)

Entitlements, such as the RTE, require an unequivocal commitment of financial resources. Historically, there have been many progressive policy documents but actual policies to achieve the objectives have lagged behind, and low resource allocation for public investment in social sectors shares a large part of the blame. To the extent RTE is an ambitious and futuristic move that guarantees every child a right to education that is worthy of being called so and not a dysfunctional system, it is expected that financial needs will be substantial. A clear estimation of resource requirement and a financial roadmap based on the normative would ensure that the governments commit the required resources, and implementation of RTE is not throttled due to resource constraints. It would allow one to evaluate the adequacy of current levels of expenditure compared to the normative requirement.

The RTE Act lays down that it is the duty of the Central Government to prepare estimates of capital and recurring expenditure for implementation of the Act. Based on estimates, the Act says, the Central government shall provide to the state government, a percentage of expenditure as it may determine in consultation with that government. This is an acknowledgement of the needs of the states for substantial central funding to uphold the Right to Education. While states must decide their priorities in actual planning and implementation, Central steering and Central funding are both crucial. The last estimate of financial requirements for universalisation goes back to 2009-10, around the time when the Act came into being. There are no recent estimates of resource requirements.

The neglect of the resource adequacy issue derives its legitimacy from a number of arguments, which define the contours of mainstream educational thinking today. The apathy is related to a certain view of public system as weak, inefficient, and unable to deliver. In the context of SSA, the blame is placed on the lack of spending capacity by various state governments and other local institutions. Since absorptive capacity is limited, it is perceived that the resource envelop does not matter. We have argued that underutilization of resources is an issue of implementation that cannot be conflated with the need for resources. Implementation has to be a part of the plan. To help state governments become institutionally strong is part of the goal and not a precondition for Central grants to be allocated. Inability of

state institutions to spend is not an indication that resources are not needed.

The second argument revolves around the expenditure-outcome linkages. It is said that despite higher expenditure, there is little success in outcomes measured as test scores. Going by evidence, the claim of high or adequate expenditure must be completely rejected. Besides, the idea of quality needs to be much more nuanced, as also the understanding of how each individual input works within the overall system rather than in isolation. To link investments in, say, classrooms or new teachers to test scores, as has surprisingly been done, would be to ignore the ecosystem of schooling with inter-related factors that must come together to ensure proper school functioning along with the right kind of learning activity. It requires fulfillment of roles assigned to various institutions backed by adequate funds and functionaries, a point that the RTE makes through its emphasis on availability of various factors in a complementary and time-bound manner.

Normative Resource Requirement Estimation

The present study attempted to respond to the deliberate neglect of the resource adequacy by estimating the normative resource requirement. The objective has been three-fold: (a) to construct a detailed financial roadmap for every Indian state and all-India, based on sound methodological foundations, while making the best use of the available data; (b) to throw light on the multilayered debates around RTE and its financing; (c) to come up with policy suggestions on the "how to" questions regarding UEE of equitable quality and feasibility of public spending.

In order to estimate the normative resource requirement for UEE, a set of reasonable norms have been carefully selected. Unit-level data on schools is the basis for estimation as the RTE norms must apply to every school. The physical norms for most important inputs for running a school are defined by the RTE Act. The broad guidelines on financial norms as suggested in the literature have been incorporated to build the framework. Norms are to be clearly defined component-wise. Financial norms are to cover required costs and cannot be based on existing levels of public expenditure. The norms are to apply equitably. The idea of equitable financing is at the core of resource estimation exercise. The education system should not be stratified. Attention has to be paid to the diverse set of inputs for schooling. Systemic costs on academic support (teacher education) and management are an important component of public education, unlike in the private sector.

To build a normative, we have asked whether the present benchmarks are suitable. What more needs to be done to move the system towards desirable targets? This engagement is essential at the policy level as benchmarks have to be continuously upgraded and refined.

What would be a decent wage for teachers if all teachers are to be treated equally and without discrimination is an important part of construction of a normative. A middle path appears as the reasonable choice. Very high wages relative to prevailing market wages gives rise to distortions of many kinds, besides being infeasible for the low income states. The low fee private school teacher's salary is a depressed distress wage and can't be considered as a benchmark. To use the wage rate of the low cost schools as the norm is to deny universal quality as being achievable. Through negotiations, some state governments have worked out middle paths of what is fair in terms of teacher's salary and would also ensure the trust and commitment to run the system with a degree of efficiency. It provides a credible benchmark for the teacher salary norm.

Methodologically, one of the advances that the present study makes is the use of unit-level data on schools with application of norms at the school level. Unit-level data on teachers has been used for the first time for more accurate estimation and understanding of the resource question. Naturally, estimates would be more robust if the infirmities of the data and the gaps in data (absence of information on terms

of contract for teachers, gaps in system level infrastructure, gaps in administrative personnel, functional classification of budgetary data, etc.) could be overcome. For better understanding and effective planning and implementation, these aspects of data need greater attention.

Adequate Provisioning for In-school and Out of School Children: The Target Group

As discussed in Chapter 3, the elementary education landscape in India is under diverse pressures. Firstly, more and more children are formally a part of the school system so the system must measure up to their educational needs as per the RTE framework. The vast majority of children in the states of Bihar, West Bengal, Odisha, Jharkhand, among others, are accessing public schools, which necessitate adequate investments for expansion and strengthening. Secondly, the public school system has also to bring in its fold the OSC, whose numbers are substantial. Both social composition and regional concentration of OSC brings home the challenge of their inclusion. The highest percentage of OSC among the child population in the 6-13+ age group, as per NSSO (2014-15) estimates is recorded in UP (13 percent), Bihar and Rajasthan (around 10 percent), Gujarat and MP (8 percent) and Jharkhand (7 percent). At the all-India level, about 15 million children in the relevant age group are out of school. The other set of pressures relate to the challenge of exit from the public schools into private ones for either lack of access or want of quality in the public school system. If the status of RTE as a core Fundamental Right provides one kind of imperative to look at the resource question for effective implementation, the fast-paced private expansion often of a questionable kind, increased stratification and deterioration of public school system presents the other compelling reason. Only a strong and healthy public school system can resist the forces of exit and set a reasonable benchmark for the private sector to follow. Public schools have to be reformed as per the RTE such that the institutions become 'good enough' for everyone, and are not neglected as schools for the poor.

What does the present resource matrix look like relative to the normative?

Infrastructure Gap and Teacher Shortages

We find substantial gaps between the normative requirement as laid down in the RTE Act and the actual situation on infrastructure in public schools. The reported deficits in classrooms might seem contrary to the narrative of shrinking strengths in government schools and empty classrooms. In fact, deficit in classrooms coexist with some surplus in all the states. Since classrooms are a fixed asset and cannot be moved from one place to another, there is definite need to create infrastructure to meet the deficits even if there are surpluses in another school/area. We have flagged that the infrastructure deficit is particularly acute in Bihar, demanding special attention.

The progress on teacher recruitments and their postings has proved more vexing than the progress on meeting infrastructure requirements. State-wise figures show massive teacher deficits as a proportion of required teachers in Bihar (53 percent) and Jharkhand (44 percent). But a whole lot of other states, including some of the southern states, also have significant teacher deficits. At the all-India level, the total teachers required was estimated at 6.19 million in 2015-16. This includes teachers needed for mainstreaming OSC and part- time instructors for UPS. Even after redistributing all the surplus teachers within a state (assuming that is possible), the estimated teacher gap stands at 25 percent of required teachers (31 percent when OSC are considered). A large percentage of schools are violating the RTE norms on teacher requirements. Besides the overall deficit, teacher gaps within a state are concentrated in the most backward and remote areas. Across the country, a significant 16 percent of teachers at the elementary level are untrained. Lack of professional qualifications in teachers is in turn closely related to the deficits in institutional capacity for teacher education and training.

The overall claim that the required "inputs" for RTE have been met is, thus, without empirical basis. There are substantial gaps in basic facilities for children who are currently in school as well as the significant proportions who are out of school.

Financial Estimates of Normative Requirements

Estimates of financial requirements are the core finding of the study. The normative Per Student Recurrent Cost (PSRC) was estimated at around Rs 23,200, all-India average, for the year 2015-16. When compared to KV per student recurring expenditure being incurred by the Central government, the normative estimates of PSRC appear in a very reasonable range. Due to underlying differences in size of the schools and the mix of new to existing teachers, among other things, there is variability in normative PSRC across states. But overall, the level of PSRC is fairly reasonable. These estimates, representative of all schools, have implications for the "school size" debate.

Composition of normative recurring cost emphasizes the complementarity of various inputs and the need to act on different fronts. Besides teachers' salary, we have carefully quantified the cost on operation and maintenance at the school level, student entitlements, and teacher professional development. Similarly, the components of academic support and management are crucial system-level inputs. Another important component is the inclusive education head. It recognizes that children belonging to marginalized social groups, CWSNs and OSC must receive more than per capita share of educational resources, if equality of opportunity is to be granted. Across states there are significant differences in cost compositions as the initial positions vary widely.

A comparison of actual expenditure with the normative presents a startling picture. Actual expenditure is alarmingly low in many states compared to normative requirement. The ratio of actual expenditure to total requirement for Bihar is only about 25 percent. In Jharkhand, Odisha, MP and West Bengal the ratio is 38-46 percent. The deficit is only a bit less in Rajasthan and Chhattisgarh. At the upper end, adequate spending is observed for Kerala, TN, among others. Within the SCSs, one again sees a lot of variation. Himachal Pradesh has the highest actual expenditure to total requirement at 81 percent while Meghalaya brings up the rear at a mere 25 percent. It establishes the widespread phenomenon of under-spending though the per student financial requirements estimated are in a reasonable range.

Under-spending here is attributable not only to physical or human resource gaps, but also to gaps in unit costs. We have argued that the patterns of spending and financial gaps have a close relationship to social policies, in particular policies on teacher recruitments, followed by the states. A financial roadmap aimed at universalisation of equitable quality should be able to address the existing gaps, as well as deficiencies and distortions in the system.

At the all-India level, additional resource requirement as proportion of GDP works out to 1.18 percent for 2015-16. Factoring in the impact of the 7th Pay Commission award on the public sector teachers' wage bill raises the additional requirement to 1.38-1.4 percent of GDP from the year of implementation. The corresponding total requirement is 2.6-2.8 percent of GDP on EE. These estimates of additional requirement are broadly in line with what was projected by the Tapas Majumdar Committee and also CABE (2005), targets that were consistently underachieved.

Financial Feasibility

There have been strong arguments suggesting that even an allocation of 6 percent of GDP to the education budget will not be sufficient to fund universal school education if the reliance is wholly or even primarily on government school system. Our estimates establish that UEE using a public school system of an equitable quality is feasible within an overall education budget of 6 percent of GDP. Even when the public sector

coverage is increased from the present levels of 67 percent to 80 percent as share of enrolment – as seen in the scenario analysis in Chapter 4 – total requirement on EE is around 3 percent of GDP (see Table 4.6).

However, feasibility is a binding constraint at present at the sub-national level. The revenue base is disproportionately small relative to the resource requirement in several states – Bihar, Jharkhand, Odisha, West Bengal, Madhya Pradesh, Chhattisgarh, Uttar Pradesh and Rajasthan. In Bihar the additional requirement to GSDP stands at a whopping 10 percent! Including some of the SCSs, a total of 16 states are identified where additional requirement to GSDP is higher than 1 percent. A similar picture emerges when additional requirement is normalized by overall revenue receipts of these states. Further, many of these 16 states are devoting a significant proportion of their revenues to EE expenditure which limits the scope of reprioritization. Public policy has to necessarily take cognizance of the unequal positions of these states.

The Four Main Policy Recommendations

Financial Roadmap is Crucial for RTE to be a Substantive Right

There is need to make a clear departure from the practice of incremental budgeting, a kind of path dependence, and adopt a clear financial roadmap for UEE compliant with the RTE Act. This normative roadmap should be based on the framework of equitable financing which would allow public education of equitable quality for everyone. A clear and transparent disclosure of methodology, assumptions and estimates should underlie the roadmap as illustrated in this study. Our estimates indicate the total requirement is in the range of 2.6 to 3 percent of GDP (additional requirement not below 1.2 percent), depending on the particular policy scenario. To ensure that the government prepares and then commits itself to a financial roadmap, public pressure will be crucial.

For better accountability towards RTE, governments – both at the center and the states – should present before the Parliament and State Assemblies a progress report of implementation of RTE, including financing aspects, every year. CAG performance audits should be made more regular. The National Advisory Council and State Advisory Councils should guide and oversee the financial allocations for RTE on an ongoing basis.

There is need for Big Push for the Focus States

Within an overall picture of inadequacy of current levels of spending, what has emerged sharply is the unequal position of the states. Our federal setup makes it imperative to examine the funds required by each state and their own ability to find resources. We have argued for differential treatment among states for financing the entitlement to EE. Sixteen states are identified where the additional resource requirement exceeds 1 percent of GSDP of the state. A big push from the center for these focus states is inevitable if all regions and all states are to fulfill the objective of UEE as per the RTE mandate. The quantum of fiscal transfer to these 16 states would need to be substantial, estimated at Rs 1,38,727 crores, or 1.01 percent of GDP for 2015-16, the reference year. For the medium-term plan, the quantum of fiscal transfer is estimated at Rs 8,51,520 crores (2015-16 prices).

For the remaining states, the Center's role would be to nudge them towards priority goals.

15th Finance Commission should recommend a Specific Purpose Grant for EE

Given the track record of educational spending in the country, and the recent emphasis on conservative budgetary management, the additional fiscal space would have to be created purposefully, and enforced. The Finance Commission, with its mandate to decide on inter-governmental resource flows, should play a proactive role in this regard. For the set of 16 states, it should suggest a specific purpose

transfer that would expand the resource envelop of the lagging states and allow them to focus on this sector. The recent trends in Central spending on education, in our opinion, signal a reversal in financial concurrency. States' responses to increases in tax devolution share suggested by the previous FC provide further reason for the 15th FC to consider specific purpose grant as a push for UEE. This is the only way that the financial roadmap can be actualized in today's context.

Social Policy should be made a priority

While the provisioning of resources is necessary, it is insufficient to ensure desired reform of the public education system. There needs to be a special effort to make the public school system functional to win back the trust of people. It is important to factor in the impediments for reforming the public system if we are to seek behavioral changes that could lead to the desired goals. Finance is only an instrument in this. Impediments in fund flows and utilization, impediments in school functionality, distortions in teacher policies, etc. need to be addressed. The complementarity of various roles is important if we are to avoid the scenario of cynical "teacher-bashing" and focus on improving delivery systems. This is where a social policy perspective is required and can evolve in a finance-enabled environment.

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The Right to Education is a hard-fought right that guarantees every child in the age group 6-14 years, the right to education of a decent quality. A clear estimation of resource requirement and a financial roadmap based on the normative is a necessary first step to ensure that the governments commit the required resources.

Carefully working its way through conceptual frameworks and empirical data, this study tries to put across estimates of normative resource requirements for every Indian state. The enquiry leads to exploration of different dimensions of the issue.

- Why has resource requirement estimation and resource planning been neglected?
- Is it true that the "inputs" for RTE have all been met as often claimed?
- What kind of resource gaps exist and how are these distributed?
- There are strong voices advocating market-based alternatives as the only way ahead. Is public expenditure necessary to fill the resource gaps really infeasible?

Our estimates show that it is feasible to provide universal quality education using public school system. At present, there are large gaps between what is required as per law and what is being supplied by the public system. For 16 states with low resource base, special assistance is necessary for adequate levels of spending on elementary education.

Adequate finances, though an essential condition for reform of the government school system, will not be enough by itself. Within a finance-enabled system, there are other steps necessary to restore school functionality and bring back trust in the system. What is necessary is a social policy perspective within which finance needs to be embedded.

The study would be of relevance for all individuals interested in education and public policy. It is particularly recommended for policy makers, think tanks, civil society organisations, researchers and teachers in the field of education.

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