



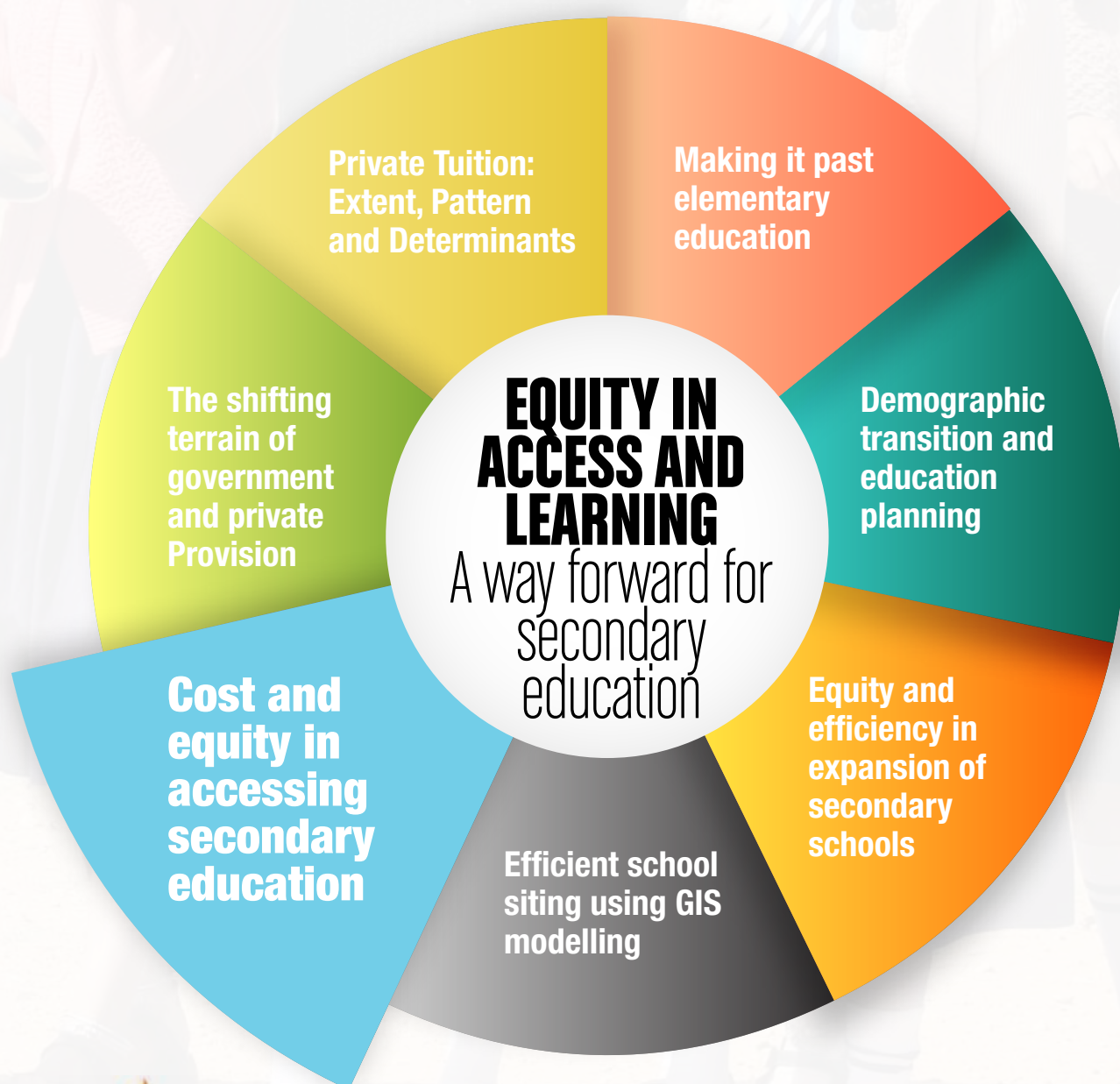
MHRD

Government of India
Ministry of Human Resource Development

RESEARCH
REPORT

V

Cost and Equity in Accessing Secondary Education



RMSA-TCA

Rashtriya Madhyamik Shiksha Abhiyan
Technical Cooperation Agency

Preface

This document is one of a series of seven research reports which has been prepared to accompany the single consolidated recommendation report *Equity in Access and Learning: A Way Forward for Secondary Education in India*. The research reports are intended to be of interest to planners, managers and policy makers, as well as to academics involved in development of policies and plans for secondary education. In addition to these reports, a research priority framework and research quality assessment framework has also been developed to take this research agenda forward.

The research programme was developed by the Rashtriya Madhyamik Shiksha Abhiyan-Technical Cooperation Agency (RMSA-TCA) in discussion with National University of Educational Planning and Administration and the Ministry of Human Resource Development (MHRD). The research was developed to respond to concerns expressed in the Joint Review Missions (JRM) to strengthen the evidence base for diagnosis of issues arising during the implementation of RMSA, and to inform policy dialogues on options that could increase access, efficiency, effectiveness, and equity.

To achieve RMSA goals, a secondary school place for each child must be affordable not only to the child and the family that supports her, but also the agencies responsible its provision. This research paper investigates levels of affordability from both the demand and the supply side, for families and for the governments.

The eight research reports in this series are as follow:

Research Report 0: <i>(Consolidation)</i>	Equity in Access and Learning: A Way Forward for Secondary Education
Research Report 1:	Making it Past Elementary Education
Research Report 2:	Demographic Transition and Education Planning
Research Report 3:	Equity and Efficiency in Expansion of Secondary Schools
Research Report 4:	Efficient School Siting using GIS Modelling
Research Report 5:	Cost and Equity in Accessing Secondary Education
Research Report 6:	The Shifting Terrain of Government and Private Provision
Research Report 7:	Private Tuition: Extent, Pattern and Determinants

RMSA TECHNICAL COOPERATION AGENCY

COST AND EQUITY IN ACCESSING SECONDARY EDUCATION

JANUARY 2016



The RMSA Technical Cooperation Agency is funded by the UK Department of International Development (DFID)



Report Distribution and Revision Sheet

Project Name: RMSA Technical Cooperation Agency

Report Number: RMSATCA 6.8

Report Title: Cost and Equity in Accessing Secondary Education in India

Revision	Date	Originators	Checker	Approver
0.1	January 2016	Prof Keith Lewin Shashiranjana Jha Gaurav Siddhu	Prof Keith Lewin	Dr Jayashree Oza

Note on Documentary Series

A series of documents has been produced by RMSA Technical Cooperation Agency for the Government of India's programme to make good quality secondary education available, accessible and affordable to all young persons in the age group of 14-18 years.

The documentary series is arranged as follows:

RMSATCA 0	Programme Management Reports and Documents
RMSATCA 1	National Achievement Survey (Reports and Documents for Thematic Area 1)
RMSATCA 2	Teacher Management and Development (Reports and Documents for Thematic Area)
RMSATCA 3	School Standards, Evaluation and Development (Reports and Documents for Thematic Area 3)
RMSATCA 4	Data Management and Use (Reports and Documents for Thematic Area 4)
RMSATCA 5	Results Focused Planning (Reports and Documents for Thematic Area 5)
RMSATCA 6	Research (Reports and Documents for Thematic Area 6)
RMSATCA 7	Communication and Knowledge Management (Reports and Documents for Thematic Area 7)

Disclaimer

This document is issued for the party which commissioned it and for specific purposes connected with the above-captioned project only. It should not be relied upon by any other party or used for any other purpose.

Table of Contents

Executive summary	4
1. Introduction	7
1.1 Current status	7
2. Secondary education affordability and barriers to access	11
2.1 Costs of secondary education to the household	12
2.2 Cost burden on households	15
2.3 Components of total school costs.....	16
2.4 Private tuition	18
2.5 Borrowing to support educational expenditure	20
2.6 Distribution of financial support.....	22
2.7 Prospective Students and Affordability	26
2.7.1 Affordability modelling	27
3. Public financing of secondary education.....	29
3.1 Determinants of public expenditure.....	30
3.2 Affordability	34
4. Conclusion.....	37
4.1 Key Policy Issues.....	38
5. Annexure	40

List of Table and Figures

Figure 1: Gross and net attendance ratio by income group	8
Figure 2: Percentage of students currently attending secondary education by school type and income group ...	9
Figure 3: Percentage distribution of students enrolled at upper primary and secondary	10
Figure 4: Household expenditure on secondary education relative to primary school expenditure	14
Figure 5: Average household expenditure on secondary education by school type and State.....	14
Figure 6: Percentage of students taking private tuition by school type and wealth quintile.....	19
Figure 7: Average amount spent on private tuition by school type in Rupees.....	19
Figure 8: Percentage of students received scholarship by State.....	22
Figure 9: Distribution of amount of tuition fees waived by income quintile and caste label axes	25
Figure 10: Distribution of scholarship amount by income quintile and caste	26
Figure 11: Percentage of students (attending a given school type) who cannot attend any school type.....	28
Figure 12: Percentage of students (attending a given school type) who cannot attend same school type.....	28
Figure 13: Secondary age children as a % of the population.....	30
Figure 14: Relative size of age groups by states whose secondary school age group is declining	31
Figure 15: Relative size of age groups by states whose secondary school age group is plateauing	31
Figure 16: State gross domestic product per capita	32
Figure 17: Expenditure on secondary education as a % of State GDP.....	33
Figure 18: Education expenditure (overall) and expenditure on the secondary level as percentages of SGDP ..	33
Figure 19: Secondary level GERs by expenditure on secondary as a percentage of SGDP	34
Figure 20: Proportion of state budgets spent on education (in total), 2012-13	34
Table 1: Distribution of secondary students from different income groups by annual course fee range.....	8
Table 2: Average annual household expenditure on secondary (in Rupees), current prices	12
Table 3: Mean educational expenditure by school management type and caste.....	13
Table 4: Mean educational expenditure by level of education and income group	13
Table 5: Expenditure on secondary education as % of annual household consumption expenditure.....	15
Table 6: Expenditure on secondary education as % of annual household disposable income	15
Table 7: Percentage of population below poverty line before and after spending on secondary education	16
Table 8: Annual household expenditure on secondary education (excluding private tuition), 2007 and 2014...	16
Table 9: Sub-components of educational expenditure as % of annual household consumption expenditure	17
Table 10: Distribution of annual secondary education expenditure by sub-components	17
Table 11: Regression coefficient for household expenditure on secondary education	18
Table 12: Expenditure on private tuition as a percentage of annual household consumption expenditure	20
Table 13: Expenditure on private tuition as a percentage of annual household consumption expenditure ¹	20
Table 14: Willingness to borrow to support educational expenditure.....	21
Table 15: Percentage distribution of reasons for taking loans, by income quintile	21
Table 16: Average amounts borrowed per year to fund secondary education in selected Blocks in three States	21
Table 17: Responses to income shocks	22
Table 18: Reasons for receiving tuition fee waiver	23
Table 19: Reasons for receiving scholarship.....	23
Table 20: Percentage of students receiving tuition fee waiver by caste and income group.....	24
Table 21: Percentage of students who received scholarship by caste and income group	24
Table 22: Average annual household expenditure on secondary education, amount of tuition fee waiver and Scholarship	24
Table 23: Additional expenditure for various transition patterns as a percentage of annual average expenditure by quintile.....	26
Table 24: Possible state spending patterns as a percentage of SGDP	35
Table 25: Range of unit costs for affordable financing.....	36

Executive Summary

A key issue confronting efforts to universalise secondary schooling in India is the affordability. To achieve RMSA goals, a secondary school place for each child must be affordable not only to the child and the family that supports her, but also the body responsible for provision, most commonly the state government. This research paper investigates levels of affordability from both the demand and the supply side, for families and for the government.

The paper interlinks with other papers from the RMSA Technical Cooperation Agency (TCA) series, including our report on the determinants of participation at secondary level, which finds that of all the issues that commonly put students at a disadvantage, cost and poverty prove the single largest barrier to access. In addition, the same factor is found to be the largest determinant of household choices of schools, with the poor most often choosing government over private provision. These reports point squarely at affordability as an issue of great relevance for attaining educational targets in India.

In looking at affordability of access, or its lack, in relation to progress towards RMSA goals, this paper arrives at several key conclusions. First, the direct costs and indirect costs to households of attendance at secondary school vary greatly by school types, and by urban and rural residence, as well as where in the country a student lives. Households in the poorest quintile *spend less than one ninth of what the richest spend* on secondary schooling and the difference is growing; this could partly be due to difference in the type of schools (government or private) children from these two groups attend. The cost of attending an aided school requires twice the expenditure compared with government provision, and private schools require four times as much.

Not only is expenditure burdensome for the poor, but there is a significant jump in cost from lower levels of schooling. *Secondary schooling is 2.5 times more expensive than primary schooling for the poorest, but less than 1.3 times more for the richest* (who tend to spend much more across their children's education with a more gradual rise in costs across grade levels). The proportions of household expenditure that the poor must allocate to access secondary schooling are onerous: households spend between 7% and 18% of their income on secondary education with most income groups allocating between 3.55% and 8%. If only disposable income is considered then for the poorest, government secondary education would consume as much as third of the disposable income. Other types of schools would absorb most if not all of the discretionary expenditure for this group. Such levels of cost can drive households from above the poverty line to below it.

The composition of the total costs to households varies according to the wealth of the household. A large proportion of spending is for uniforms, books, stationary and tuition fees. For government schools these costs are 51% of the total education expenditure and as much as 75% at private schools. The poorest households spend a smaller proportion on school fees largely because most attend government schools. Significantly and worryingly, the largest share of education expenditure for the poor is on private tuition, which represents 36% of the total costs associated with attendance at government schools, 22% at aided schools and 13% at private schools. The perceived need amongst poor households to spend money on private tuition is a poor reflection on the quality of schools and learning there in resulting in parental dissatisfaction.. The result is a highly burdensome levels of costs for poor families to invest in the future of their children, and many resort to borrowing at unreasonably high rates of interest just to manage the costs, making themselves poorer in the process.

Fee waivers and scholarships are available to help lighten the burden on poor households, however these are currently vastly insufficient to meet the needs of those in the poorest two quintiles of wealth. Waivers are awarded to between just 5% and 10% of SCs and STs. Scholarships are more common with half of STs in quintile 1 and 2 receiving awards and about 40% of SCs. Surprisingly however, over 20% of the richest SCs and STs also receive scholarships, representing a highly inequitable and inefficient system of allocations. Worse still, though fee waivers are much more common amongst the poorest, the amounts given are larger for the richest who receive them.

More needs to be done to support the participation of the poorest, but such support to make schooling more affordable to the poor must also be affordable to the state governments responsible. Increasing fee waivers and scholarships for the poorest half of India's families could be partly funded by diverting scholarships and fee waivers away from wealthy households. However more funding overall maybe needed in many states. The paper investigates affordability of secondary schooling for government, and provides a tool for planners to determine, based on local state realities, what level of expenditure may be affordable.

Requirements for public expenditure depend on the numbers of children in secondary school, the allocation of public resources available to education, and the costs per child. Demographic transition is a reality in some states, while for others the population of secondary school aged children will continue to grow for some time. State politics play a major role in determining where each state falls in terms of the extent of priority placed on secondary-level education. But states' GDP per capita varies greatly meaning different levels of resourcing for the state to draw on; and allocations to secondary education vary from below 0.3% SGDP to over 2%. Total education spending ranges from 2% to 6% of SGDP, while states spend between 10% and 20% of their total budget on education. The paper concludes that states must come to careful, balanced decisions regarding expenditure levels, depending on the circumstances within the state. Under this situation it is a reality that more funding overall is needed in many states.

A clear message from the research for all states is that more needs to be done to support the participation of the poorest children. This includes the poorest two quintiles and possibly even up to half of the middle quintile. Expenditure should be directed away from awards and allocations to richer groups in favour of their poorer peers. Secondary schooling at the present time is essentially unaffordable to the poorest - and this paper also considered the difference between somehow *managing to pay* (through borrowing or making enormous sacrifices in other areas of household expenditure amongst other strategies), and *true affordability*. Yet most families consider an education to be an essential investment for their futures, preferring to cut from many other areas in cases of financial shock, rather than cutting from education. Under present circumstances universalisation of secondary schooling is not affordable to households, while government cannot afford to ignore this issue and must act to inject much greater equity in access and equality of opportunity.

1. Introduction

Rashtriya Madhyamik Shiksha Abhiyan (RMSA) seeks to provide expanded access to secondary schools in India with the long term goal of ensuring that all children have the opportunity to complete 10 years of formal education. In India, considerable educational disparities exist between States, between urban and rural areas, and between castes. These disparities contribute to and reinforce wider problems in society, such as socioeconomic inequality. In addition to this, with the emergence of non-state providers of education and their continuing growth, private (household) resources have become a significant element of education financing, with clear implications for equity in access and participation in secondary education in India where those who can pay more can ensure access for their children, at the same time insulating them from more disadvantaged groups in society.

While the majority of educational provision at secondary level is publicly funded, this funding is in practice socially regressive. This is because the funding allocated is insufficient to make government schooling fee-free to users, and the costs are high for poor households (roughly those in the poorest 40-50%). This has resulted in a situation where participation at the secondary level is strongly correlated with income, meaning a highly inequitable and unsatisfactory situation, and a major obstacle for achieving RMSA goals. Both public and private schools charge fees and require other contributions from households. In addition there are other direct and indirect costs, often including the additional burden of private tuition which is widespread at secondary level. Many households contract debt to finance educational expenditures and the poorest can only borrow at very high rates of interest, sinking themselves further into poverty.

Access and affordability related to secondary education can be viewed from different perspectives. Most simply, reasonable access can be understood to include (and require): the opportunity to attend a secondary school located within a reasonable distance of the household; that the school will not use selection criteria to exclude any school-aged children; and that the school will not charge fees and levies that prevent those without the ability to pay from attending. However, these may be minimum but not sufficient conditions for affordable access and other conditions may determine whether participation is possible and whether it is sustained.

There are a range of other factors that affect access, and which can differ from context to context. Firstly, indirect costs such as travel, food, books and materials, and private tuition can be substantial and can often exclude. Secondly, opportunity costs for adolescent children who could be working to contribute to household income may act as a disincentive to attend. Thirdly, affordability is relative to incomes that are often from the informal or agricultural sectors that may fluctuate, and income shocks may lead to temporary or permanent withdrawal. Fourthly, the cumulative burden of financing expenditure through borrowing sets limits to what is affordable. It is therefore critical to understand how affordable access to secondary education is, and what the conditions are under which RMSA might succeed.

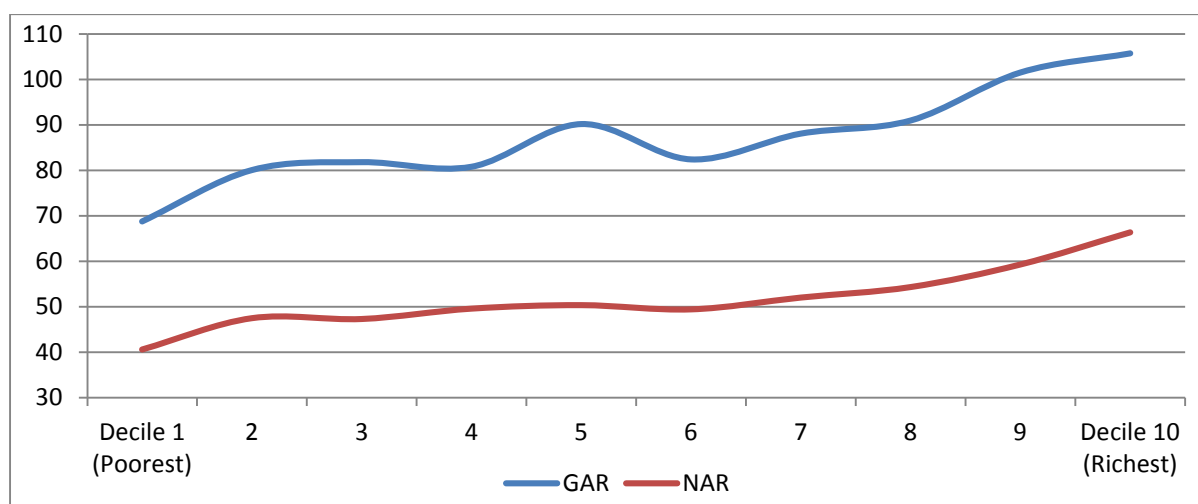
1.1 Current status

India has experienced significant change since the economic liberalisation of the 1990s, which brought increasing emphasis on 'human capital accumulation', but at the same time more cost recovery mechanisms. States have failed to ensure that financing for vital sectors such as education has kept pace with general economic growth and rising prices, while in some low-enrolment states, public expenditure has failed to keep pace with rapidly increasing levels of participation in elementary

education. Expanding demand, unmet by government, has led to a rise in private provision, as well as private supplemental tutoring for pupils at both government and private schools.

Access to secondary education in India has increased but this expansion has not been equitably distributed across the population with poor and marginalised groups participating at much lower levels than more advantaged peers. While the gross attendance ratio (GAR) for the richest quintile is over 100%, it is just 68% for the poorest decile (figure 1). The net attendance ratio (NAR) for the poorest is around 40% as compared to 66% for the richest income group.

Figure 1: Gross and net attendance ratio by income group



Source: Estimates based on NSS 71st round unit level data

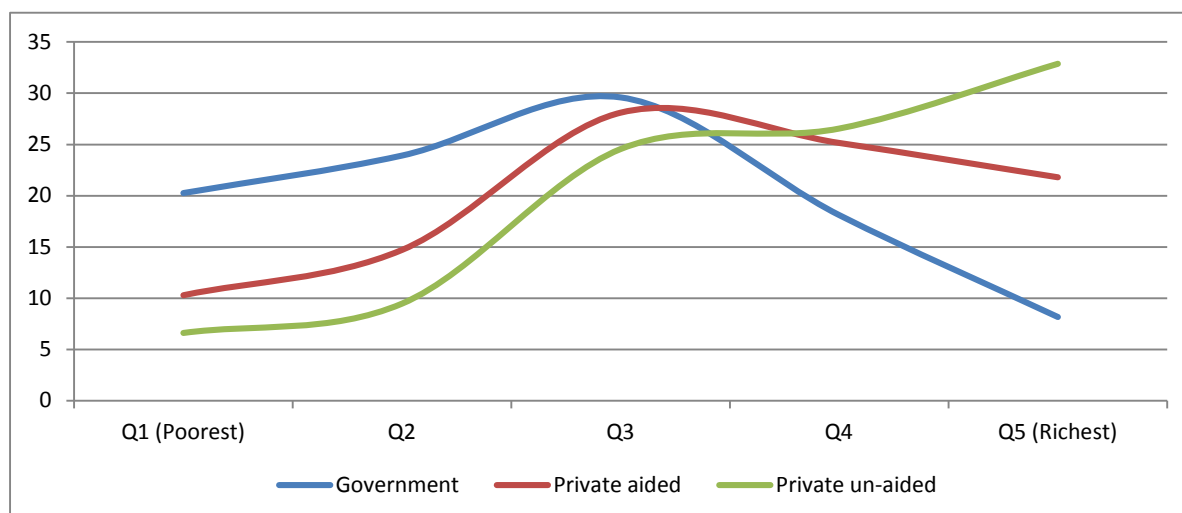
The poorest continue to attend schools that are cheap and do not impose additional financial burden. Table 1 reports the participation at secondary level for children of different income groups in schools with different course fee ranges. Most of the students from the poorest income groups are participating in schools with course fees below INR 500 annually. Almost half of the students belonging to the richest income group are attending the schools with fees above INR 6800 annually.

Table 1: Distribution of secondary students from different income groups by annual course fee range

Income Group	Course fee range				
	0-50	51-500	501-2100	2110-6750	>=6800
Q1 (Poorest)	12.9	46.4	31.9	5.8	2.9
Q2	9.6	44.2	31.6	11.5	3.0
Q3	7.9	37.3	29.4	15.3	10.2
Q4	6.9	27.6	25.6	21.4	18.5
Q5 (Richest)	4.0	14.8	16.1	20.3	44.9

Source: Estimates based on NSS 71st round unit level data

The distribution of students between different schools types (government or private) is strongly related to the affordability capacity of the household. Figure 2 presents the distribution of students currently attending secondary school by school type and income group, showing a clear association between higher income and attendance at private schools, while the poorest are most likely to attend government schools. The chart clearly shows that most children attending government schools are from the bottom two quintiles and those attending private schools belong to the top two quintiles.

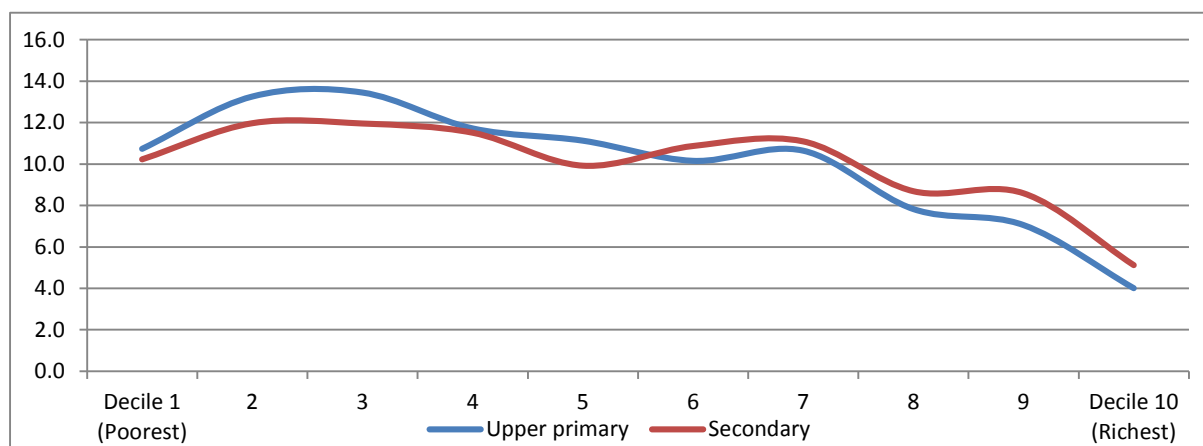
Figure 2: Percentage of students currently attending secondary education by school type and income group

Source: Estimates based on NSS 71st round unit level data

The problem of poor students' low levels of access to secondary education as observed in figure 1 is created by inequality in household income or wealth, and universalisation of secondary education will depend on increasing the number of students from poor and historically disadvantaged backgrounds. Nearly 40 percent of the students who are currently enrolled at upper primary level are likely to be from financially constrained backgrounds (Figure 3). The chart also implies that the representation of bottom four decile is much higher at the upper primary level as against the secondary level. This could be due to the fact that large percentage of children dropout as a result of incremental costs (as found by Siddhu 2011¹), resulting from transition from upper primary to secondary level, thus making secondary education unaffordable.

The issue of affordability of secondary education will play an important role in the extent to which the universalization of secondary education can be achieved and benefits reaped from its achievement. Those who withdraw before completing the secondary cycle with good performance on the Board Examinations will lose the opportunity to continue on to higher secondary schools and higher education, and will forego any advantage that secondary schooling confers in terms of access to jobs in the modern sector labour market that are allocated by educational qualifications. Meaningful access to secondary education is only realized when students complete a full cycle with appropriate levels of achievement with all the inputs necessary to achieve this outcome. Meaningful access depends on affordability, requiring more than simple enrolment, includes the idea that participation must not be compromised by inability to pay for all of the complementary expenditures that accompany attendance in schools. Additionally, affordable, meaningful access requires that schools should be of an acceptable quality. Where poorer children drop out during the cycle, the investment that their families made is effectively lost, without these recognised qualifications that are recognized in the job market. The question then for all those concerned with achieving RMSA goals is: *can students from poorer economic groups afford participation in secondary education of acceptable quality?*

¹ Siddhu, G. (2011) Who makes it to secondary school? Determinants of transition to secondary schools in rural India. *International Journal of Educational Development*, 31:4, 394-401.

Figure 3: Percentage distribution of students enrolled at upper primary and secondary

Source: Estimates based on NSS 71st round unit level data

This paper is organised into three parts. First, the *concept of affordability* is discussed in order to arrive at an operational definition which is then applied to different datasets on household income and expenditure. An analysis is then undertaken of household expenditure on secondary education to establish how much is spent by different groups on different categories of expenditures and to link this to our working definition (through relevant indicators) of affordability. In the second part, expenditure by the State is considered to establish how patterns vary across States and how they compare with different indicators of *public affordability*. The last part brings together the messages from the preceding analysis in a discussion of the financial constraints on growth and identifies policy options for sustainable increases in participation at affordable costs.

2. Secondary Education Affordability and Barriers to Access

One definition of affordability is that it is a measure of someone's ability to purchase a goods or a service without unacceptable or unreasonable sacrifices, including for people of limited means (Axene 2003²). This is a relative construct that depends on what is 'reasonable and acceptable' at different points in time, in varying contexts, and in relation to different alternative allocation opportunities. Affordability is not as simple as determining whether or not a person has the resources available to purchase an item. According to Niëns et al. (2012)³, affordability has to do with securing a standard of living (of which education is a crucial part) at a price that 'does not impose an unreasonable burden on household incomes'. Over three decades ago Psacharopoulos and Woodhall (1985)⁴ documented that even 'free' education has opportunity costs for poor families, and that these families also tend to have more children to support through education, which continues to be true today. Ersado (2002)⁵ argues that 'for poor households, school investment decisions are associated with a host of decisions regarding use of time and other resources, of various household members. Changes in household circumstances, such as income shocks, may elicit important time use changes' (p.2), potentially impacting on participation in school.

Affordability may be empirically defined as the proportion of annual family income required to pay for all educational expenses, being kept below a threshold not requiring unreasonable sacrifices. The ratio of expenditure to income may be used to convey information on expenditure patterns for households across social and economic groups; across urban and rural communities. The ratio can also show the differing cost burden of different levels of education and can show changes in trends in expenditure over time. However this ratio does not, in the absence of information on other household expenditure burdens, provide a complete picture of affordability.

A lower ratio for poorer households does not necessarily mean education is more affordable since the proportion of household expenditure that is discretionary may be much smaller. Information on the disposable income of the household - and a ratio can be calculated using this information as opposed to complete household income - may be more pertinent. Alternatively, affordability can be examined as the ratio of median educational expenditure to median income across a large number of households. This value can be assumed to be a normative indicator of affordability as it is a reflection of actual allocation to education. This measure suffers from problems of aggregation and the heterogeneity of household preferences and circumstances. An alternate approach can be to use the expenditure of the second poorest quartile as a standard below which subsidies would be necessary.

² Axene, J. D.V. (2003). Health Care Affordability: A Valuable Concept in Understanding Our Health Care System Challenges, Health Section News. No. 45.

³ Niëns LM, Van de Poel E, Cameron A, Ewen M, Laing RO, Brouwer WBF (2012). Practical measurement of affordability: an application to medicines. Bulletin World Health Organisation-03; 90(3):219-227.

⁴ Psacharopoulos, G. & Woodhall, M. (1985). Education for Development. An analysis of investment choices, Oxford, Oxford University Press.

⁵ Ersado, L. (2002). Income diversification in Zimbabwe: Welfare implications from urban and rural areas. International Food Policy Research Institute, FCND DP# 152, Washington, DC.

Arriving at any type of poverty line is essentially arbitrary but if carefully and transparently selected can be useful.

An impoverishment approach can also be used, using the absolute quantity of available resources within the household. If the household is initially above the poverty line but drops below it after paying for education, the household can be said to have been 'impoverished' by the payment (Niëns, et.al 2012). The median ratio approach is often used to develop affordability indices, but it remains important to remember that if educational expenditure results in the household becoming materially poorer in ways which directly affect wellbeing (for example through poorer nutrition, health, shelter) then education has come at an unacceptable cost and is therefore unaffordable, even when the costs have been met. This will usually be the case where debt is contracted, often in the informal sector meaning interest rates of over 50% annually (TCA Survey).

The costs of secondary schooling impose *de facto* limits to access. The extent of household poverty prevailing in India dictates that even very low costs may prove a barrier to the very poor. This section of the report presents evidence organised around various research questions, on the cost of secondary education, the burden it imposes on the household and the limitations of currently available public measures for mitigating these costs. In analysing the costs of education to households, we consider several factors, including: the direct cost burden to households and the composition of this cost burden which, in addition to the standard costs of schooling such as fees and books, also includes private tuition, borrowing (interest), and the impacts of scholarships and fee waivers. The aim is to explain affordability of secondary education and identify the limits school costs set on achieving RMSA goals.

The paper draws on both primary and secondary data sources to analyse the extent and patterns of cost of secondary schooling. The secondary data used in this paper includes National Sample Survey (NSS) 64th and 71st round unit level data. The primary data is from a survey conducted by RMSA Technical Cooperation Agency (TCA) in three states: Assam, Bihar and Odisha.

2.1 Costs of secondary education to the household

Key questions:

- What are the direct and indirect costs to households of attendance at secondary school for different types of schools, including government, aided and private?
- How do expenditures vary for different children – by gender, location, social group, and ascribed status (Scheduled Castes (SC), Scheduled Tribes (ST) and Other Backward Castes (OBC))

Table 2: Average annual household expenditure on secondary (in Rupees), current prices

Quintile	1995-96	2007-08	2014-15
Q1 (Poorest)	693	1691	3771
Q2	858	1934	4492
Q3	1000	2361	6153
Q4	1278	3326	9166
Q5 (Richest)	1950	6866	20285
Inequality in expenditure (Q5-Q1)	1257	5175	16514

Source: Estimates based on NSS 52nd, 64th and 71st round unit level data

Household expenditure has increased greatly over the last 20 years, including for the poorest (table 2). It is striking that household expenditure in the richest quintile has rapidly pulled away from those

in poorer groups. This is true in current prices and after inflation related to the Consumer Prices Index has been taken into account. This reflects increasing income inequality and hardening of the existing stratifications in schooling whereby the wealthy pay more and more for private schooling. The expenditure inequality between the richest and the poorest has increased from INR 1257 to INR 16514 between 1995 and 2014. The richest quintile has seen its average expenditure increase more than ten times between 1995 and 2015 whereas for the poorest the increase has only been five times. This in part will reflect the growth in uptake of fee paying private schooling amongst the rich.

Table 3: Mean educational expenditure by school management type and caste

	2007-08				2014-15			
	ST	SC	OBC	Others	ST	SC	OBC	Others
Government	1733	1842	1800	3117	3023	3991	3791	5817
Aided	3237	2752	2929	5597	8468	7079	8123	15481
Private	5469	5190	5847	10048	13396	12600	15451	22285

Source: Estimates based on 64th and 71st round unit level data

Household expenditure on education varies by social group and it is clear that in general traditionally more advantaged groups ('others') spend more than SCs and STs and OBCs. Aided schools are roughly twice as expensive to attend as government schools and half as much as private schools, however there is also much variation within each of these categories (Table 3). A similar story of vastly different levels of spending emerges from table 4, which details the levels of spending at each level, by wealth quintile. It should be noted that disadvantages from marginalisation through caste group and through poverty often overlap and reinforce each other. It shows that children from the poorest families may have to spend twice to access secondary schools as compared to what they were spending at the upper primary level. This incremental expenditure is minimal for the richest. This can partly be the reason for dropout amongst the poorest during transition to the secondary level.

Table 4: Mean educational expenditure by level of education and income group

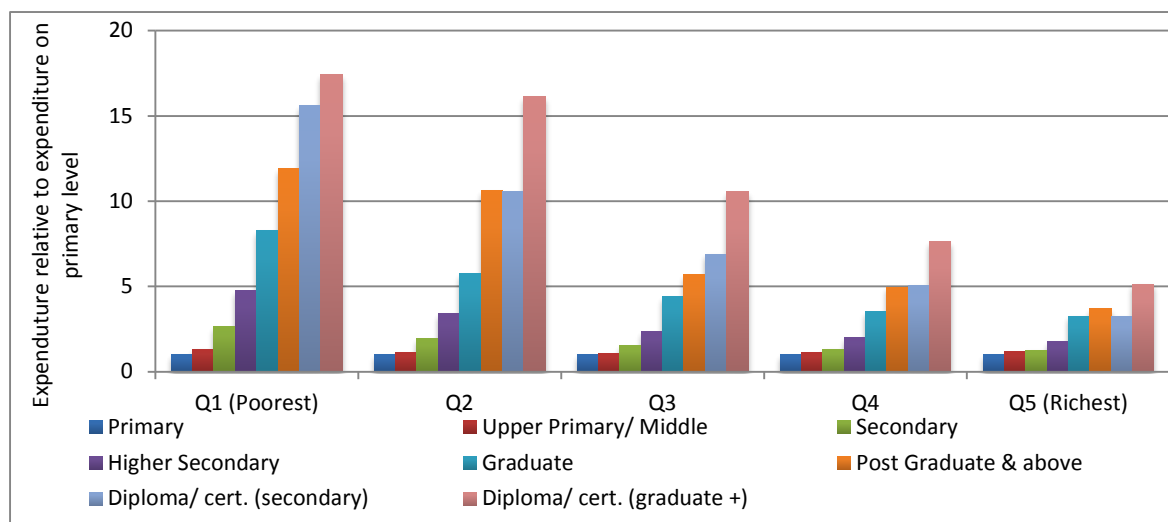
	Q1 (Poorest)	Q2	Q3	Q4	Q5 (Richest)
Primary	1295	2118	3610	6073	14222
Upper Primary	1715	2403	3735	6633	16592
Secondary	3406	4088	5462	8096	17934
Higher Secondary	6131	7220	8470	12223	24912
Diploma/ certificate course (up to secondary)	17753	16011	16577	22361	33748
Diploma/ certificate course (secondary)	20187	22340	24903	30899	46427
Diploma/ certificate course (graduation & above)	22566	34232	38143	46181	73048
Graduate	10735	12135	15894	21414	46260
Post Graduate & above	15437	22444	20480	30125	52804
Overall	2615	3801	5991	10156	25649

Source: Estimates based on 71st round unit level data

If expenditure on primary level is treated as a reference level then it is clear that the poorest households have to make considerably more effort to support participation at higher levels than do richer households (figure 4). Secondary schooling is 2.6 times more expensive than primary for Quintile 1 households but only 1.3 times as much for rich households. At undergraduate level the respective ratios are over 8:1 for the poorest and only 3:1 for the richest. The rich spend much more in absolute terms but spend more evenly between higher and lower levels of education. This clearly

indicates that transition to higher levels is far tougher for poorest than children from richest groups due to costs of accessing higher levels schools.

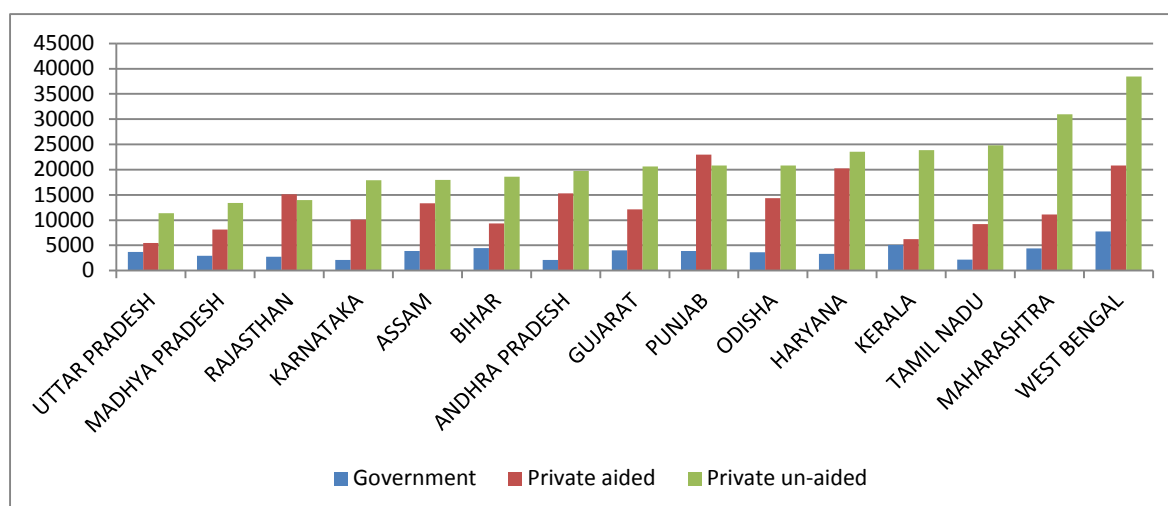
Figure 4: Household expenditure on secondary education relative to primary school expenditure



Source: Estimates based on 71st round unit level data

Average household expenditure on secondary education by school type and state is reported in figure 5, showing great variation across states. In the case of government schools, households in West Bengal spend more than 3 times households in Karnataka, where the average expenditure is about INR 2,000. Households spend more on private schooling, which varies from INR 11,000 in Uttar Pradesh to over INR 35,000 in West Bengal. There does not exist much variation in government school student expenditure between states. The following section provides a more detailed discussion of the differing burdens of educational costs on different households.

Figure 5: Average household expenditure on secondary education by school type and State



Source: Estimates based on 71st round unit level data

2.2 Cost burden on households

The key questions are:

- What proportion of household expenditure is allocated to education and secondary education for each quintile within different social groups?
- What proportion of household income is needed to attend secondary school for different quintiles?
- How do the levels of expenditure required interact with the poverty line and what do they mean for 'true' affordability?

Expenditure by households on education as a proportion of total expenditure varies with household wealth and school type. For those with children in government schools the percentages range from nearly 7% for the poorest to 4% for the richest (Table 5). The range for aided schools is from 13% to 8% and for private schools from over 19% to 12%. The message is clear that even accessing government secondary schooling for the poorest would mean twice the burden on the household as compared to the richest accessing similar type of school.

Table 5: Expenditure on secondary education as % of annual household consumption expenditure

	Government	Private aided	Private unaided
Q1 (Poorest)	6.8	11.9	17.5
Q2	5.6	8.1	13.6
Q3	4.3	7.4	12.7
Q4	3.6	7.8	11.4
Q5 (Richest)	3.5	8.3	10.7

Source: Estimates based on 71st round unit level data

Total household expenditure has two elements. The first part is pre-committed to spending that is essential and largely non-discretionary, for example food, housing, medical care and taxes. The second part is often called disposable income (*as discussed on page 10*) and is the proportion which the household can choose to allocate to different things.

Table 6: Expenditure on secondary education as % of annual household disposable income

	Government	Aided	Private unaided
Q1 (Poorest)	29.1	51.3	75.2
Q2	11.8	17.2	28.8
Q3	8.1	14.1	24.0
Q4	6.4	13.9	20.3
Q5 (Richest)	4.9	11.6	15.1

Source: Estimates based on 71st round unit level data

Table 6 presents expenditure on the three school types as a percentage of household disposable expenditure. It is clear that very large proportions of disposable income have to be allocated to the costs of secondary education to the extent that over 29% would be needed in the poorest households for attendance at government schools and over 75% of the disposable expenditure has to be made available if the poorest have option of only attending private schools. This is problematic if in some locations this is the only type of school available. It can be inferred from table 5 and 6 that affordability of education expenditure cannot be simply established using total household expenditure as a basis. The share of education expenditure increased drastically for the poorest as compared to richest when disposable expenditure is used implying essential expenditure consume large share of income for the

poorest. This does not factor in the expenditure of household on children accessing other levels of education and any income shocks.

Table 7: Percentage of population below poverty line before and after spending on secondary education

	Rural		Urban	
	Before	After	Before	After
Q1 (Poorest)	87.7	88.8	11.1	11.1
Q2	0.0	9.1	8.7	11.0
Q3	0.0	0.4	0.0	1.7
Q4	0.0	0.1	0.0	0.2
Q5 (Richest)	0.0	0.0	0.0	0.0

Source: Estimates based on 71st round unit level data

Another way of looking at the problem is to determine what effect schooling expenditures have on households near the poverty line, indicated in table 7. Most poor rural households in quintile 1 are already below the poverty line and this there is little or no effect of the additional cost of secondary education in this binary poor/non-poor classification (while it is highly likely to make their poverty deeper). However, about 9% of rural households in quintile 2 move below the poverty line as a result of the costs of secondary schooling. A smaller number of urban households cross the poverty threshold because they are richer in the first place. There will be many other households above and below the poverty line that are made poorer by paying educational costs. The effect is bigger for attendance at secondary school than at elementary level because costs are higher relative to expenditure. It is important to recognise that any costs for services that are paid by poor families make those households poorer as a result of the additional cost burden. In general it makes little sense to adopt policies designed to reduce poverty while at the same time tolerating fee paying for public services delivered to poor households.

2.3 Components of total school costs

Key questions:

- What is the composition of the total costs to households for direct and indirect costs? How are the costs broken down into different elements – such as fees, books, travel, uniforms, food, and exam fees?
- How does the composition of costs vary for different quintiles and for different types of school?

Educational costs to households are made up of direct (e.g. fees) and indirect (e.g. transport) costs. The average expenditure of urban households is more than double that for rural schools. Most of the costs are related to course fees, books stationary, uniforms, transport and private tuition.

Table 8: Annual household expenditure on secondary education (excluding private tuition), 2007 and 2014

Items of expenditure	2007-08		2014-15	
	Rural	Urban	Rural	Urban
Course Fee (Rs.)	1118	3373	2377	6551
Books, Stationery & Uniform (Rs.)	1330	1830	1723	2575
Transport (Rs.)	564	1350	876	1987
Other Expenditure	691	1454	601	804
Total Expenditure (Rs.)	2443	6091	5822	13589

Source: Estimates based on 64th and 71st round unit level data

In 2007-08 households in rural areas spent on an average INR 2443 on secondary education while in urban areas this was INR 6091. Expenditure on fees (tuition, exam and other fees) constitute 40

percent of the total costs of secondary schooling in rural areas and 50 percent in urban areas. These urban-rural differences are partly explained by the higher proportions of urban children attending aided and private schools (Table 8).

Given these patterns of average household expenditure, the universalisation secondary education will have to be facilitated by expanding government schools which entail the lowest expenditure for households. Aided schools average about half the cost of private unaided schools but twice the cost of government schools. With the expansion of elementary schools such that participation will become universal it will be essential to design subsidies targeted towards the poorest children, who will increasingly be coming into the system. Overwhelmingly new demand for places in secondary school is likely to be from children belonging to bottom three quintiles of household income, so financial support to these children will be crucial in achieving the universalization of secondary education in India.

Table 9: Sub-components of educational expenditure as % of annual household consumption expenditure

	Course Fee	Books, Stationery & Uniform	Transport	Private Coaching	Other Expenditure	Overall
Q1 (Poorest)	2.3	2.9	0.5	2.2	0.4	8.3
Q2	1.8	2.3	0.5	1.9	0.3	6.8
Q3	2.4	1.9	0.5	1.3	0.4	6.5
Q4	2.9	1.7	0.6	1.3	0.3	6.7
Q5 (Richest)	4.0	1.4	0.8	1.7	0.4	8.2
Overall	3.0	1.8	0.6	1.6	0.4	7.3

Source: Estimates based on 71st round unit level data

Table 9 reports the percentage of different heads of education expenditure as a percentage of annual household expenditure. The percent of annual expenditure spent on the course fee amongst the poorest income group is 2% compared to the 4% amongst the richest income group. The poorest households spend larger shares of their annual household income on private tuition. Expenditures on books, stationery and uniform also constitute significant proportions of annual household expenditure of the poorest.

Table 10: Distribution of annual secondary education expenditure by sub-components

	Course Fee	Books, Stationery & Uniform	Transport	Private Coaching	Other Expenditure
Government	15	36	7	36	7
Aided	40	23	9	22	5
Private	57	18	9	13	4
Not Known	53	21	12	10	4
Overall	41	24	9	21	5

Source: Estimates based on 71st round unit level data

Table 10 presents expenditure on different heads as a percent of average expenditure on secondary education by type of school attended. Course fees in government schools constitute a small proportion of average expenditure on secondary education compared to that of private schools. Other expenditure such as books, stationery and uniforms, and private tuition are significant expenditures incurred by the households who send children to government schools.

Table 11: Regression coefficient for household expenditure on secondary education

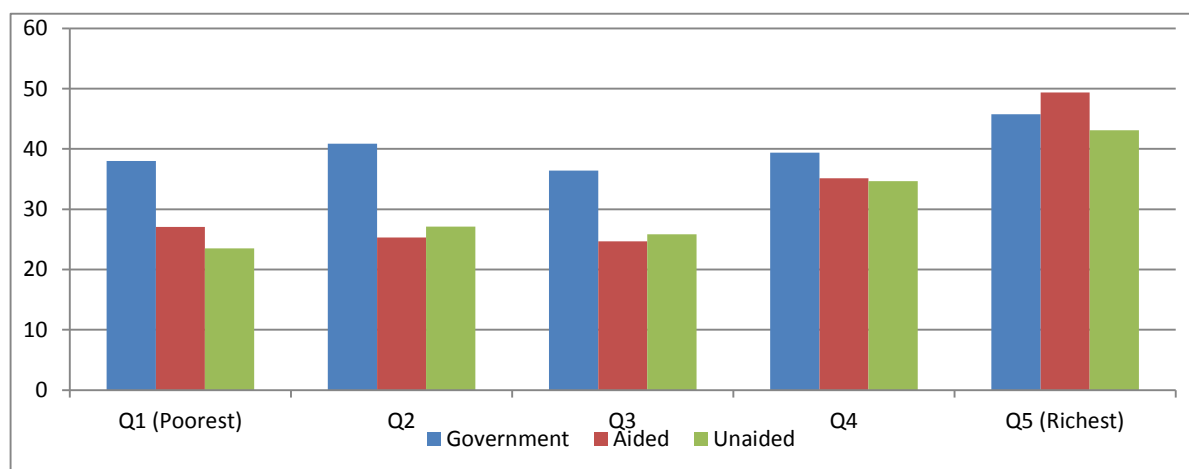
	Standardized coefficients	T value
Gender (Male=1)	0.01	1.2
Location (Rural=1)	-0.09	-11.8*
Household Size	-0.12	-12.7*
Age at entry in School	-0.01	-1.8
Number of school age children	-0.04	-4.6*
Reference category =Other institution		
Government school	-0.22	-3.8*
Aided school	-0.06	-1.4
Unaided school	0.11	2.2**
Reference category =Other Caste		
Scheduled tribe	-0.02	-2.3**
Scheduled caste	-0.05	-6.3*
Other backward Caste	-0.07	-8.9*
Islam	-0.03	-4.1*
Average years of schooling at household level	0.1	11.8*
Taking private tuition	0.20	28.0*
Received scholarship/ Stipend	0.03	3.1*
Annual household consumption expenditure (Quintile)	0.34	42.4*
Scholarship*private tuition	-0.04	-4.7*
Reference category =Distance to nearest secondary school up to one km		
Distance to nearest secondary school one to two K.M	0.01	1.8
Distance to nearest secondary school two to three K.M	0.04	6.2*
Distance to nearest secondary school three to five K.M	0.05	7.8*
Distance to nearest secondary school five K.M and above	0.14	19.2*
Reference category =Casual labour		
Self employed	0.00	-.4
Regular wage earning	0.00	-.008
Other employment	0.02	2.1**
R Square	0.47	
N	13,002	

Source: Estimates based on 71st round unit level data

Regression analysis using household expenditure on secondary education as the dependent variable confirms a number of trends and associations (table 11). Location (rural families spend less than urban), household size (larger households spend more), and the number of school age children (the greater the number, the more is spent in total) are all associated with greater expenditure. Scheduled tribes and castes and Muslims appear to have lower household expenditure on secondary, not least because their participation rates are lower. Those who receive scholarships and stipends spend less in terms of household expenditure and those who take private tuition spend more. Distance to school is directly correlated with increased household expenditure as would be expected.

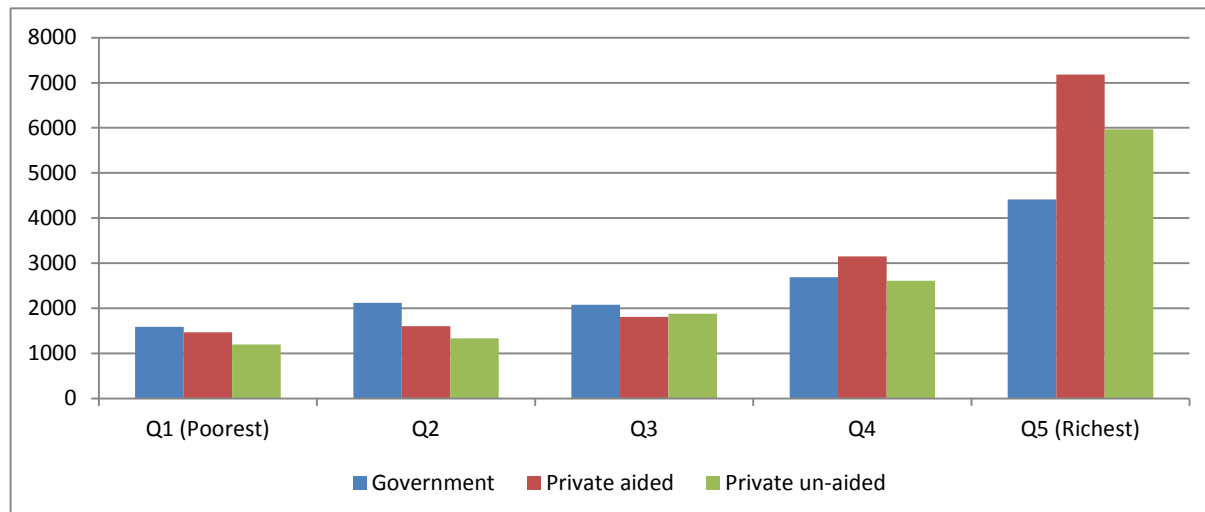
2.4 Private tuition

- What percentage of students attending different school types are taking private tuition?
- How much is spent on private tuition and how does this compare with other costs?
- How is spending on private tuition distributed between quintiles and between school types?

Figure 6: Percentage of students taking private tuition by school type and wealth quintile

Source: Estimates based on 71st round unit level data

The uptake of the private tuition is high across all income groups attending any type of school. Figure 6 above reports the percentage of students taking private tuition by school type and income group. On an average over 30% of the students attending government schools were observed to be taking private tuition. The percentage of students taking private tuition varied between 38% amongst the poorest to 46% amongst the richest. In the case of private schooling this varied between 24% to 43%.

Figure 7: Average amount spent on private tuition by school type in Rupees

Source: Estimates based on 71st round unit level data

Expenditure on private tuition by the households constitutes a significant share of total household expenditure on secondary education. On average the poorest households spend over INR 1500 in the case of government school attendance, strikingly this is greater than for those poor children attending other types of schools. This trend continues up through quintile three. In the richest quintile, children attending government schools spend almost three times of what poorest spend (figure 7).

Table 12: Expenditure on private tuition as a percentage of annual household consumption expenditure

	ST	SC	OBC	Others	Overall
Government	1.6	2.9	2.2	3.5	2.7
Aided	1.3	2.1	2.1	4.4	3.1
Private	1.7	2.4	1.9	2.9	2.5
Total	1.6	2.7	2.1	3.4	2.7

Source: Estimates based on 71st round unit level data

Expenditure on private tuition as a percent of annual household income by social group and school type is reported in table 12. Households, accessing private tuitions, on an average spend about 2.7% of their annual household income on it. The 'others' caste category on average spends higher share of income, amounting to 3.4%. Across the caste categories, spending on private tuition was found to be higher in the case of government and aided school pupils as compared to those accessing private unaided schools.

Table 13: Expenditure on private tuition as a percentage of annual household consumption expenditure¹

	Q1 (Poorest)	Q2	Q3	Q4	Q5 (Richest)
Government	4.0	3.8	2.8	2.7	2.3
Private aided	4.2	2.7	2.6	2.9	3.0
Private unaided	6.2	3.1	2.7	2.4	2.6
Overall	4.2	3.6	2.8	2.7	2.6

Sources: Estimates based on 71st round unit level data

Private tuition constitutes a significant proportion of annual household income across the income groups (table 13). In government schools the poorest households spends about 4% of their annual income and 6% in the case of private schools. The pattern of spending on private tuition as a percentage of household consumption expenditure indicates that the poorest spend more as a percentage of their total expenditure. For middle and high income households there is not much difference in the amounts spent on private tuition. This is regressive as the cost subsidisation of government school, in form of salaried and running cost, does not benefit poorest as the poor quality of learning has to be substituted through private tuition.

2.5 Borrowing to support educational expenditure

Key Questions:

- What proportion of households borrows to pay direct and indirect educational costs (including private tuition?); how much do they borrow and what rates of interest are they likely to be charged?
- How much of a burden is this at different levels of income above and below the poverty line?
- What are the responses of households to income shocks that have an impact on the affordability of educational costs?

Households that have difficulty affording to meet school costs may borrow money to finance participation in secondary education. It is difficult to establish how common borrowing is and the extent to which it generates onerous long term debt. Fieldwork in Bihar by RMSA-Technical Cooperation Agency (TCA) does indicate that borrowing to finance school fees and private tuition is common. Unsecured rural interest rates can be as high as 7% to 8% per month or over 200% per year. Other kinds of lending to poor households appear to be rarely less than 40% annual interest but there is no systematic data. Clearly contracting debt with these interest rates is unsustainable.

Table 14: Willingness to borrow to support educational expenditure

'I borrow money to meet the costs of schooling'			
	Government	Unaided	Aided
Strongly Agree	9.3	10.7	17.3
Agree	25.8	28.2	11.1
Disagree	37.8	53.0	28.4
Strongly Disagree	27.1	8.1	43.2

Source: Field survey data

Data from the TCA household survey suggests that between 30% and 40% of households borrow to support the costs of schooling. The percentage of households likely to borrow is over 35% both in the case of government and private schools (Table 14). This proportion is just under than for private schools. While the costs of government schooling are lower, many families over-stretch themselves to access private schooling, clearly necessitating borrowing.

Table 15: Percentage distribution of reasons for taking loans, by income quintile

	Health	Education	Marriage	Business	Farming and Household expenditure
Q1 (Poorest)	39.8	10.2	1.6	14.1	34.4
Q2	29.3	19.5	6.1	13.4	31.7
Q3	39.2	13.6	6.3	14.2	26.7
Q4	46.8	13.3	1.9	11.4	26.6
Q5 (Richest)	35.6	16.9	4.9	16.0	26.7
Overall	37.8	15.0	4.3	14.0	28.8

Source: Field survey data

Burden of educational cost is clearly visible in table 15 which reports the purpose of loans taken, by income group. The table indicates that amongst the poorest, 10% of the loans were taken to fund secondary education, and nearly 20% amongst households in the second quintile. Overall education was responsible for between 10% and 20% of the reasons given for loans taken, with health issues being the most common reasons.

Table 16: Average amounts borrowed per year to fund secondary education in selected Blocks in three States

	Government	Unaided	Aided	Overall
Assam	1554	3134	3278	1913
Bihar	167	1452	0	253
Odisha	187	294	490	213
Overall	337	1921	792	454

Source: Field survey data

The amount of borrowing cannot be reliably estimated from existing data. Data from the RMSA-TCA sample suggests that amongst those households that borrow, the amounts vary widely from a few hundred to several thousand rupees per month. Those in private schools appear to borrow more. Overall the average amount of borrowing for funding secondary education varies between 337 INR in government school to 1921 INR in private schools (table 16).

The response to income shocks in this same sample indicated that borrowing was the most common response to shocks to income with sales of assets and sending children out to work as the other most frequent responses. Cutting expenditure on education was not a frequent response from most respondents, indicating the high priority placed on education amongst even vulnerable households (table 17). The message is clear that high level of cost of secondary education limits their capacity to

afford and not sustainable for long term particularly for households on verge of poverty and those whose income is not stable.

Table 17: Responses to income shocks

	Loan	Cut consumption	Cut education expense	Sale of asset	Children started working	Other
Assam	46.4	2.7	0.9	22.1	26.6	1.3
Bihar	100.0	0.0	0.0	0.0	0.0	0.0
Odisha	22.5	41.7	0.0	6.6	29.1	0.0
Overall	44.3	15.4	0.5	14.5	24.5	0.7

Source: Field survey data

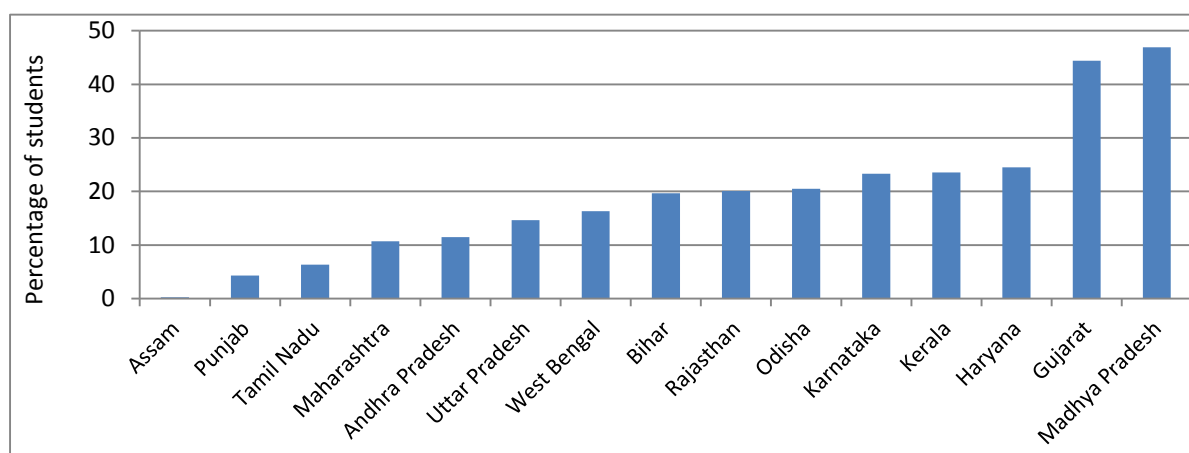
2.6 Distribution of financial support

Key Questions:

- What proportion of secondary students receive financial assistance (scholarships and fee waivers) and how are these distributed across wealth quintiles?
- What are the reasons and criteria for allocation of fee waivers and scholarships?

There is no consistency across India in terms of provision of fee waivers and scholarships. While decisions in a federal country are left up to state governments, it should be within the remit of federal initiatives such as RMSA to initiate more even, equitable policies across states to support the participation of the poor, and from figure 8 we see that to date, there is enormous variation across states in terms of scholarship receipts. This varies from 0.2% in Assam to 47% in Madhya Pradesh, meaning that where a child lives in the country, not just whether they are urban or rural, will affect their chances of receiving support.

Figure 8: Percentage of students received scholarship by State



Source: Estimates based on 71st round unit level data

Fee waivers and scholarships are provided both by the school as well as the state governments. They are available in form of either partial or full fee waiver, cash stipend or other material support. The criteria for receiving these including coming from a reserved group (SCs, STs and OBCs), and coming from economically weaker sections (EWS). Table 18 reports the basis on which children received tuition fee waivers, as reported by households, while table 19 provides the basis for receipt of scholarships. The largest single criteria for the award of fee waivers is belonging to SCs, STs and OBCs, and this is targeted at supporting the participation of these groups who are otherwise less likely to

participate at the secondary level. Yet fee waivers are also often given on merit or performance grounds- which will often tend to favour more advantaged students who receive more support for their studies from within their households. Scholarships are more fairly distributed across wealth categories though due to awards based on merit, still far too much state funding is being channeled towards those already most able to pay. Far too few children from quintile 1 are receiving either fee waivers or scholarships, while in the interests of equity they should, and need to receive the lion's share of both.

Table 18: Reasons for receiving tuition fee waiver

	Q1 (Poorest)	Q2	Q3	Q4	Q5 (Richest)
ST	49.2	12.0	26.6	10.6	1.6
SC	38.0	23.6	21.7	4.7	12.0
OBC	14.7	20.3	44.5	11.8	8.7
Merit	0.0	0.0	10.5	0.0	89.5
Financially weak	2.8	19.0	24.4	41.6	12.2
Others	3.0	15.0	35.6	29.2	17.2
Overall	17.7	17.3	32.3	20.3	12.4

Source: Estimates based on 71st round unit level data

Overall, under 18 percent poorest students got fee waiver as compared to over 12 richest ones. Maximum fee waiver was received by children in quintile 3 (table 18). For scholarships, largest beneficiary is children from quintile 3. Overall, three times poorest children received scholarship as compared to richest children (table 19).

Table 19: Reasons for receiving scholarship

	Q1 (Poorest)	Q2	Q3	Q4	Q5 (Richest)
ST	31.1	27.5	24.6	12.8	4.0
SC	28.2	25.3	23.4	15.3	7.8
OBC	15.7	22.1	34.4	20.3	7.5
Merit	7.7	13.5	38.6	10.7	29.6
Financially weak	18.3	23.1	39.0	16.4	3.3
Others	14.5	26.8	27.0	20.3	11.5
Overall	22.4	24.8	28.2	16.9	7.6

Source: Estimates based on 71st round unit level data

The proportion of students receiving fee waivers by caste and income group is shown in table 20. Most fee waivers are received by STs and yet only around 7% appear to benefit, but only about 6% of SCs receive full or partial fee waivers. In both cases most recipients are within the poorest quintile. It is important to note that while only 2% of those in the 'others' caste category receive waivers, providing this group with any waivers can be considered regressive and not pro-poor, particularly as the majority of these recipients are in the richest two quintiles. However while more than 4% SC students in richest quintile received fee waiver less than 1% poorest from 'others' caste category got the fee waiver. It is a startling finding that such low percentages of students in quintiles 1 and 2 are in receipt of fee waivers which, on their own, do not even provide sufficient cost relief to render secondary schooling affordable. No children outside of the poorest two quintiles should be receiving these waivers, and all children within the poorest two quintiles should be receiving them.

Table 20: Percentage of students receiving tuition fee waiver by caste and income group

	ST		SC		OBC		Others	
	Fully	Partly	Fully	Partly	Fully	Partly	Fully	Partly
Q1 (Poorest)	10.7	8.0	5.2	3.6	0.6	2.0	0.3	0.0
Q2	2.7	1.4	4.2	0.8	1.8	3.3	0.9	0.5
Q3	1.7	4.6	3.0	2.3	3.8	1.0	1.4	1.6
Q4	1.3	2.5	0.4	2.0	1.1	1.4	2.3	2.1
Q5 (Richest)	0.0	1.0	3.5	0.8	0.3	1.3	1.2	0.9
Overall	3.3	3.5	4.0	1.9	1.5	1.8	1.2	1.0

Source: Estimates based on 71st round unit level data

The picture of who is receiving scholarships is more positive, with on average 38% of STs and 32% of SC receiving them (table 21). Only 6.5% of 'other' castes received scholarships though a greater proportion will be poor. The percentage of students receiving scholarships is observed to reduce as the degree of marginalisation (as indicated by caste grouping and poverty) decreases. Overall 20% of all the students received scholarships, yet still much more, if not all, scholarship funding should be directed at those in the poorest two quintiles. Once again, poverty is not a determinant of who receives scholarship instead caste category is the major determinant. While almost 25% richest SC students received scholarship on 5.5% poorest students from 'others' group availed it.

Table 21: Percentage of students who received scholarship by caste and income group

	ST	SC	OBC	Other	Overall
Q1 (Poorest)	51.4	46.5	19.3	5.5	29
Q2	48.4	32.5	23.6	9.3	26
Q3	37.2	26.2	19.7	9	20
Q4	33.3	29.9	15.3	5.2	15.9
Q5 (Richest)	21.7	24.6	10.3	3.4	9.4
Overall	38.4	31.9	17.6	6.5	20.1

Source: Estimates based on 71st round unit level data

In addition to the selection of students receiving fee waivers and scholarships being inappropriate, the amounts awarded are also regressive. Richer families tend to receive larger amounts than poor families (table 22). In case of government schools, richest received three times fee waiver than that received by the poorest. On an average richest students receive almost Rs 8000 per year in form of fee waiver as compared to under Rs 400 for those from the poorest economic group. The amount of scholarship received by the two groups is Rs 1977 and Rs 893 respectively. Richest government school students received Rs 1167 annually in form of scholarship as compared to Rs 885 awarded to poorest students.

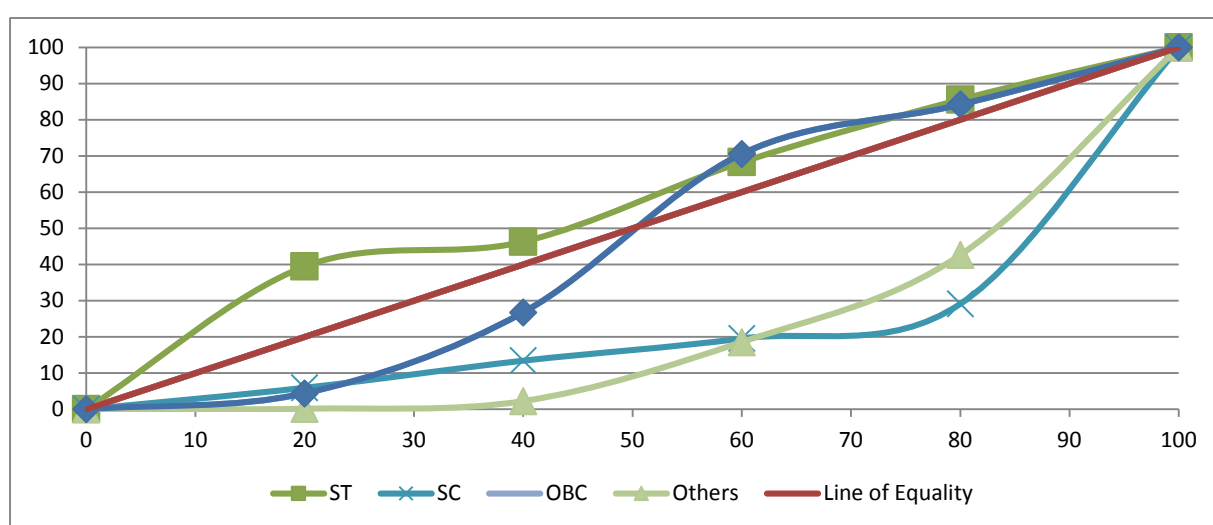
Table 22: Average annual household expenditure on secondary education, amount of tuition fee waiver and Scholarship

	Average annual household expenditure on secondary education	Average annual amount of tuition fee waived	Average annual amount of scholarship
Q1 (Poorest)	3406	368	893
Q2	4088	744	1004
Q3	5462	1087	1001
Q4	8096	1650	1012
Q5 (Richest)	17934	7970	1977
Overall	7467	1818	1055

Source: Estimates based on 71st round unit level data

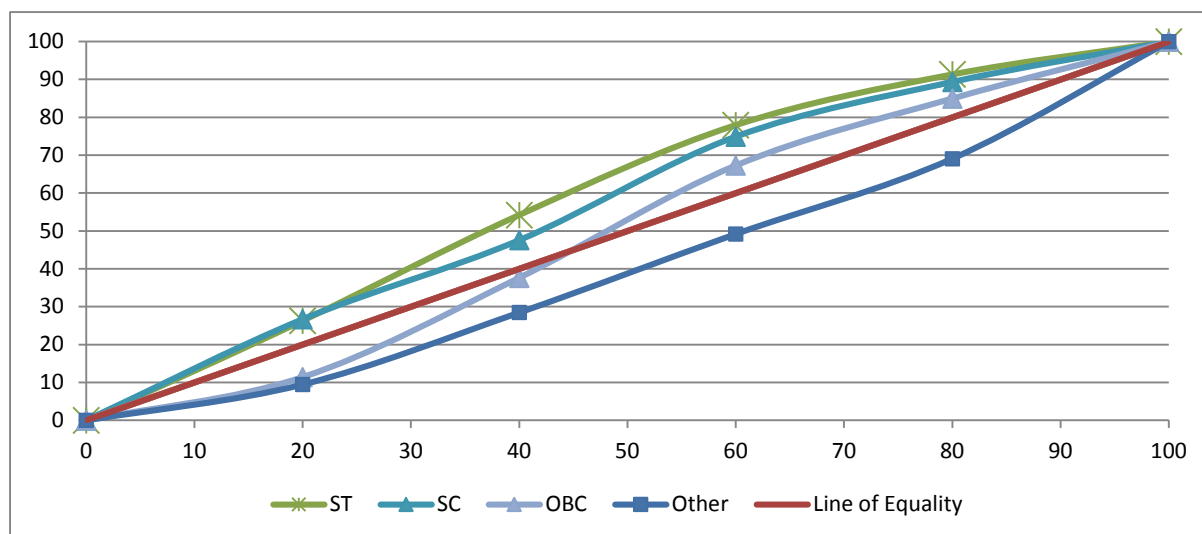
Figure 9 & 10 presents equality/inequality in the distribution of fee waiver and scholarships by caste categories. The line of equality in the chart represents equal distribution of fee waiver and scholarships across all income quintiles. If the distribution line for any caste is above the line of equality before turning south, it is considered progressive as it benefits the poorest and vice-versa. Figure 10 confirms what is a highly iniquitous and regressive distribution pattern: *a large proportion of total fee waivers are received by the top 20% of households in income terms*. They receive around 40% of all fee waivers by value, while the bottom 20% receive around 10% of total fee waiver amounts. This is likely to be because participation in secondary schooling is much greater amongst the richer households and the allocation of fee waivers is based on reserved groups and caste affiliation - of whom fewer make it to secondary school, leaving more funding available for elite capture. The figure clearly indicates that poorest ST benefit for the fee waiver while it is richer from other caste groups that benefit from this award.

Figure 9: Distribution of amount of tuition fees waived by income quintile and caste label axes



Source: Estimates based on 71st round unit level data

In contrast to fee waivers the allocation of scholarship amounts is more progressive. The bottom 20% received 33% of total scholarships by value while the top 20% received around 19% of total scholarship value (Figure 10). While this represents an improvement on the picture of fee waiver distribution, there is no good justification for diverting scholarship funds from the poorest to the richest quintiles. Poor households will depend far more on scholarship support due to expenditure on secondary education representing a much larger proportion of their household income, and therefore much more burdensome for them than for richer households.

Figure 10: Distribution of scholarship amount by income quintile and caste

Source: Estimates based on 71st round unit level data

2.7 Prospective Students and Affordability

- What proportion of grade 8 students come from households that will be able to afford the costs of attendance at secondary school?

The ability (or not) of the families of grade 8 pupils to afford the increased costs involved in transition to secondary school is found to be the largest major determining factor in the level of demand for places at secondary schools. Children are most likely to transition either from government elementary school to government secondary school; from private to private school; or from government school to a private or aided school. It is unusual for pupils to transition from government to private school, however this is sometimes the case. Research in TCA case study states documented some such cases in situations where there was no government secondary school within an acceptable distance of the household. While children from low-income households would be likely to benefit the most from attendance at secondary schools, the costs involved often limit their opportunities. Table 23 shows how additional costs impinge on households with different levels of expenditure.

Table 23: Additional expenditure for various transition patterns as a percentage of annual average expenditure by quintile

	Situation 1 (govt. to govt.)	Situation 2 (pvt. to pvt.)	Situation 3 (govt. to pvt.)
Q1 (Poorest)	5.6	9.9	32.0
Q2	3.6	6.4	20.8
Q3	2.8	4.9	16.0
Q4	2.0	3.6	11.6
Q5 (Richest)	1.1	1.9	6.1

Source: Estimates based on NSS 71st round unit level data

The poorest households need to increase expenditure by a minimum of 5.6 times to transition from government elementary to government secondary school. If the child changes to a private school the average increase in expenditure appears to be over 30 times as much. In general, transition results in a very large increase in costs which proves an onerous burden on the poorest households.

On average, if a child transitions within the government system, the household will need to spend an additional 1,127 Rupees per year. In the case of a private-to-private transition, households will need to spend nearly 2,000 Rupees more. The most onerous increase is involved in a government-to-private school transition, in which case the household will be required to spend 6,464 additional Rupees per year. In each of these three situations the poorest households are those most severely impacted.

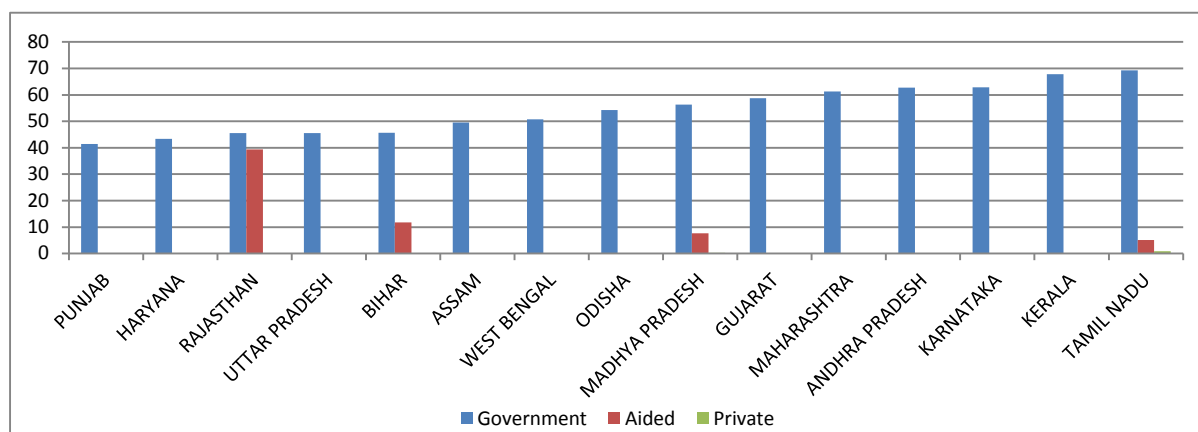
2.7.1 Affordability modelling

To estimate the percentage of the population currently attending upper primary grades who are at risk of being pushed out due to secondary schools proving unaffordable, a simple median expenditure ratio model was set up. As a first step, an affordability threshold was established, indicating the ratio of current household expenditure on secondary school course fees and their annual consumption expenditure, above which secondary education can be considered unaffordable. Separate thresholds were estimated for children attending government, aided and private schools separately for every state. At the national level, these affordability thresholds were estimated to be 0.5%, 1.7% and 5% of current expenditure on course fees for children attending government, aided and private schools respectively at the secondary level.

As a second stage, a median ratio of secondary school fees to upper primary students' family income was calculated for children who are currently in the upper primary grades. This was calculated by taking a ratio of secondary school median course fee and median household expenditure of households with children in upper primary grades. Three separate ratios were calculated using the three median course expenditure levels for the three school types. Finally, an upper primary affordability threshold for households was calculated in the same way as for the secondary level affordability threshold. This was estimated as a ratio of a household's current expenditure (course fee) on upper primary education and their annual consumption expenditure. Separate thresholds were estimated for children attending government, aided and private schools separately for every state.

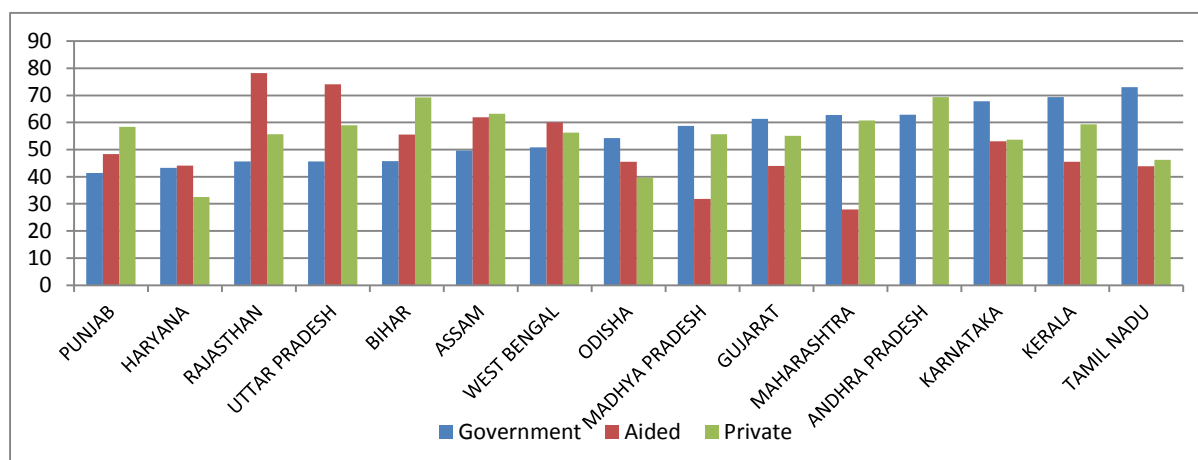
Two separate analyses were then conducted to estimate the percentage of children who will be at risk of dropping out after elementary grade 8 rather than making the transition from upper primary to secondary. Firstly, figure 11 presents the percentage chance of drop-out for children attending a given school type due to their family's inability to afford any secondary school, including the cheapest (government) option. Secondly figure 12 presents the percentage chance of drop-out for children attending a given school type due to an inability to afford the same type of school as they are currently attending, at the secondary level.

As can be seen in figure 11, all children attending private schools at the upper primary level should be able to afford secondary school which is either government, aided or private without making any unacceptable financial compromise in other areas of priority. Similarly, except in Rajasthan, Bihar and MP, most children attending aided schools should similarly be able to make this transition. However in Rajasthan, 40% of children attending aided schools at the upper primary level may not be able to make the transition to any type of secondary school with being provided financial assistance. The situation is quite dire for the students attending government school at the upper primary level across all states. While in Punjab above 40% upper primary students attending government schools may not be able to afford any school type at the secondary level, this percentage rises to 69% in the case of Tamil Nadu. The analysis indicates a wide disparity in the affordability capacity of children attending different school type. It also stresses the need to provide targeted financial assistance rather than universally if RMSA aims to enhance the participation of those most marginalized.

Figure 11: Percentage of students (attending a given school type) who cannot attend any school type

Source: Estimates based on NSS 71st round unit level data

Figure 12 presents the percentage of students attending a given elementary level school type who may not be able to attend a secondary school of the same type. The analysis indicates that access becomes more limited for far more children where the goal is to transition to the same type of secondary school. So for example, while a family may be able to afford the cost of a private school up through elementary level, many will find a private secondary school unaffordable. In the case of Haryana, 32% children attending private elementary schools may not be able to attend a private secondary school due to the increased cost. This percentage is even higher, at 69%, in Bihar and Andhra Pradesh.

Figure 12: Percentage of students (attending a given school type) who cannot attend same school type

Source: Estimates based on NSS 71st round unit level data

In summary, given the prevailing patterns of costs which increase with levels of schooling, and the insufficient lightening of the load through waivers and scholarships, universalisation of secondary education presents a major challenge with the poorest the most likely to be excluded. For these households, between 4% and 12% of household expenditure is required to send just one child to the most affordable secondary school. Greater demand-side support will be needed to supply the full range of associated costs if those currently not accessing secondary schools are to be included, as those currently out of school are mostly the poorest and disadvantaged. Such supports would also help to stop poor households from being further impoverished through secondary school expenditures. A clearer, explicitly progressive allocation policy with effective selection criteria is needed for all scholarships and fee waivers.

3. Public Financing of Secondary Education

Key question:

Is secondary education affordable to state governments?

Public expenditure on secondary education is largely determined by state governments who receive centrally allocated funds from the national budget through centrally sponsored schemes. Decisions regarding allocations at the state level reflect different spending priorities and preferences for patterns of school organisation that have different cost structures. This analysis seeks to provide a general overview of the factors that shape spending and identifies the range of resource allocation likely to be needed to achieve and then sustain near universal levels of enrolment.

The cost to the public budget of expansion of participation at secondary level in India is determined by:

- i) the number of secondary school-aged children
- ii) the costs of secondary school places
- iii) the willingness to allocate public spending to secondary education

Formally

$X_2 = GER_2 * A_2 * C_2$ where:

X_2 = Public expenditure on secondary education as a percentage of GDP

GER_2 = Gross Enrolment Rate at the secondary level

A_2 = Proportion of the population of secondary school age

C_2 = Public recurrent expenditure on secondary schooling per student as a percentage of GDP per capita

This equation above determines what levels of resource allocation results in what level of participation. Many other factors influence each of the parameters. These include first that, though the proportion of the population of secondary school age is known 15 years in advance of enrolment, it can change on a shorter time scale if there is significant migration. Second, costs are related to the proportion of the age group that actually do enroll and the extent of willingness to take up places and remain in school can fluctuate significantly from year to year. In addition, there are many students who are outside of the official age range. Third, demography is also important because it determines the ratio of workers who pay taxes to children who need educating which has implications for affordability to the government.

The proportion of state gross domestic product (GDP) allocated to secondary education is partly dependent on allocations to other levels since there is internal competition for funds within the overall financing envelope. The amounts allocated to elementary education are essentially determined by the cost per child at this level and the number of children. The assumption is that enough places will be financed to enroll all children apart from those in the fee paying private sector. There is some uncertainty about how many are in the private sector but its affordability imposes an upper limit estimated to be around 40% of total enrolments. At secondary level, participation is currently discretionary and enrolment less than universal. This will change if the secondary level is eventually brought into the Right to Education (RTE) framework. Amounts spent on secondary, higher secondary,

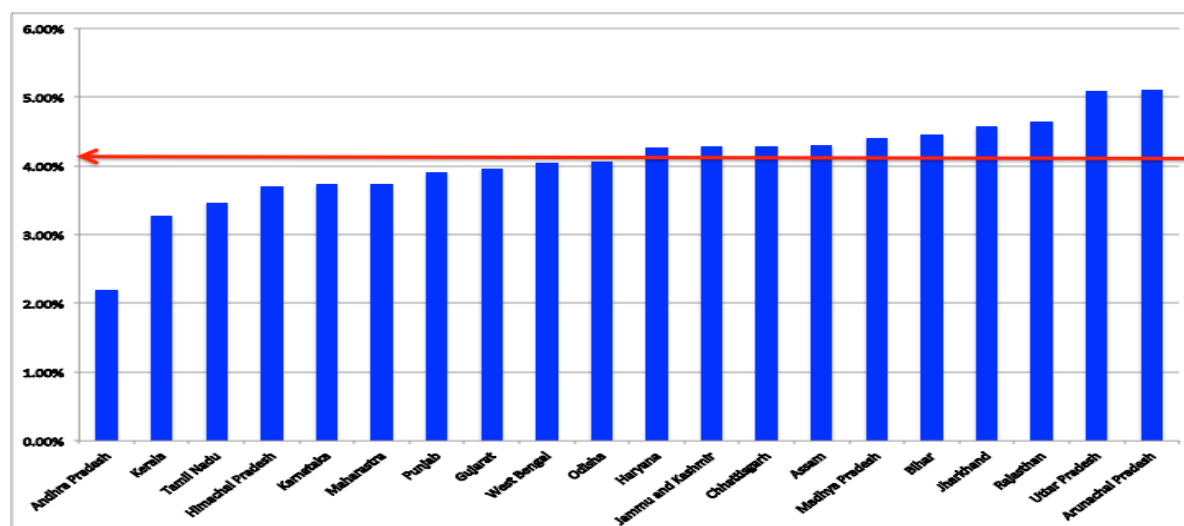
and further and higher education, will be determined by policy on participation and on cost recovery, and on the strength of effective demand. The amount of tax collected determines the domestic revenue which funds public services. This in turn depends on State GDP and fiscal measures which differ between states.

Public recurrent expenditure per secondary student comprises of all of the associated costs including teachers' salaries, non-teaching salaries, and non-salary recurrent costs. The costs of capital works will need to be financed and amortised over the lifetime of such assets. The resulting unit costs will stand in relation to unit costs at other levels, generating overall patterns of expenditure and allocations by level of education. Universal provision will be difficult if not impossible where unit costs at secondary are more than twice those at primary level. What can be achieved will also depend on the marginal costs of the enrolment of additional children into the school system. These costs may be lower or higher than the average costs depending on context. The hardest to reach will be likely to require the most support, and possibly therefore higher unit costs.

3.1 Determinants of public expenditure

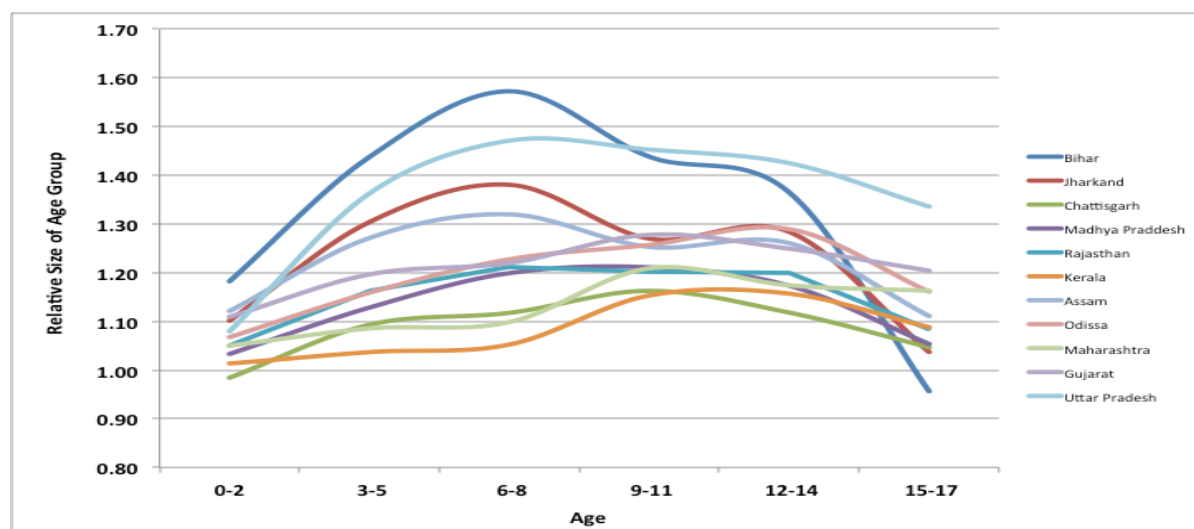
In the next discussion we take the three main determinants of financial expenditure for universal access to secondary school and identify their main characteristics. First, figure 13 shows how the **proportion of children of secondary school age** varies by State. On average a little over 4% of children are of secondary age with the smallest proportions in Andhra Pradesh, Kerala and Tamil Nadu. Rajasthan, Uttar Pradesh and Arunachal Pradesh have much higher proportions of school-aged children as a result of higher population growth.

Figure 13: Secondary age children as a % of the population



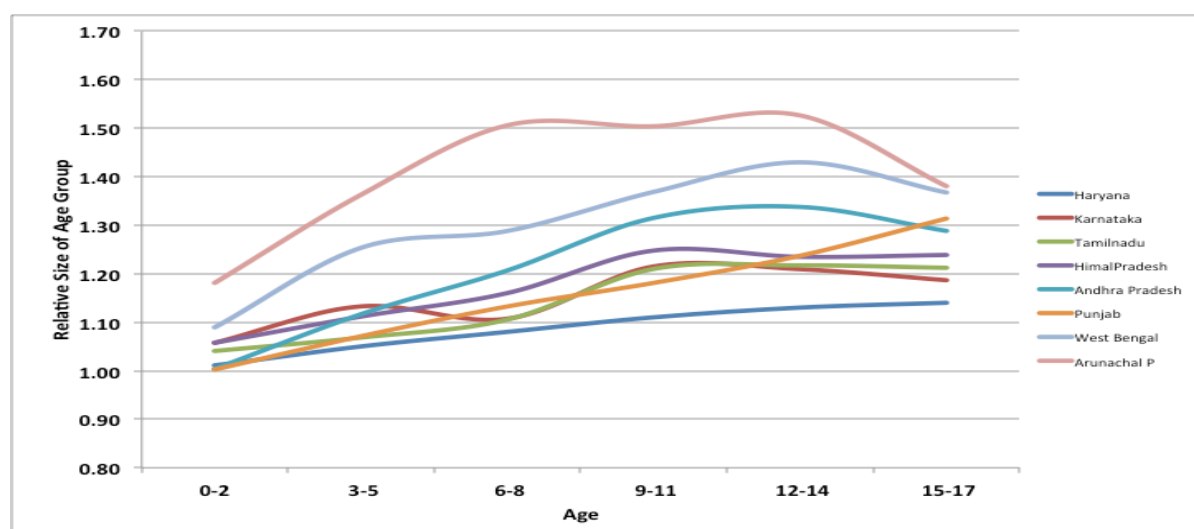
Source: Census, GoI 2011

Figure 14 provides an indication of how demographic transition is likely to change the numbers of secondary school age children in the future. It identifies states where the number of children in the age cohorts 6-8 or 9-11 years peaked in 2011. Since then the numbers have fallen. These children are of secondary age (as of 2015 onwards) suggesting that in all the states pictured, the total number of secondary age children will begin to fall.

Figure 14: Relative size of age groups by states whose secondary school age group is declining

Source: Census 2011

Figure 15 depicts the patterns for another group of states whose general trajectory is upwards: the numbers of children in the secondary school age group is set to continue to rise or is beginning to plateau. These states include those with continuing population growth that will continue to need to plan for increasing demand for some time to come.

Figure 15: Relative size of age groups by states whose secondary school age group is plateauing

Source: Census 2011

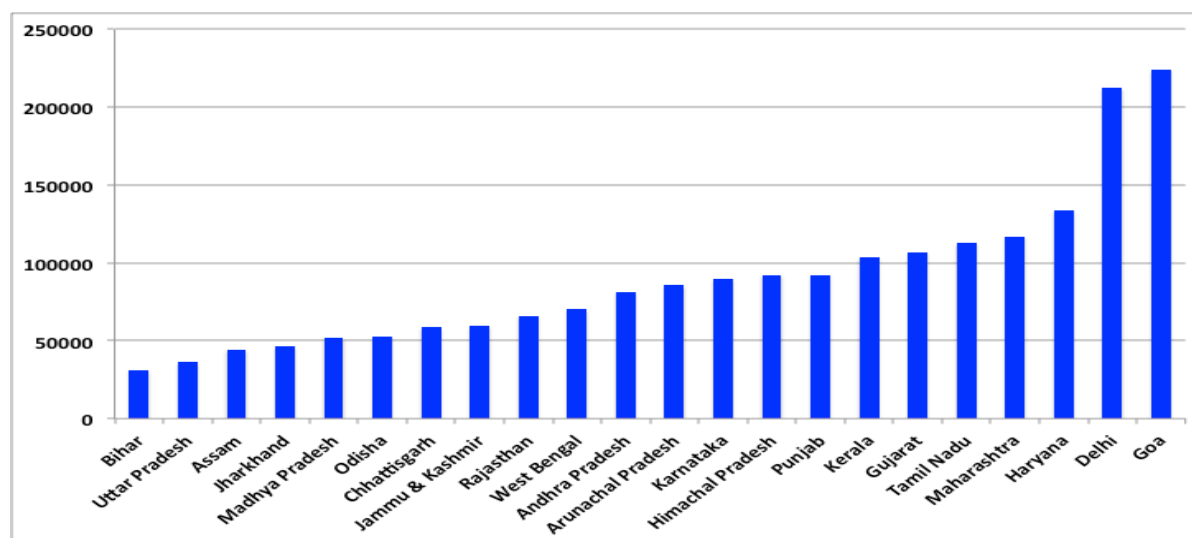
The falling in the numbers of secondary school-aged children are predictable and certain, and will continue for at least the next 15 years, since the data are based on children already born in 2011. This both makes it easier to achieve higher levels of enrolment at the secondary level but also carries the risk of overshoot in capacity if more schools are opened when overall demand is set to fall. Local conditions, especially urban migration, may create patterns of demand that diverge from the overall trend towards a falling student population. Falls will be greatest where existing enrolments are lowest and where increased participation rates compensate for falling numbers of school-aged children in the population.

Second, **public expenditure per child on secondary education as a proportion of GDP** is difficult to calculate. The amounts vary widely from school type to school type and within school types. National

statistics are not disaggregated for secondary and upper secondary school and states differ even in the way they record upper secondary enrolments. Enrolment rates vary greatly between states, as do the salaries of teachers and the mix of government and contract teachers.

Some indication of cost per student at secondary level is evident from the state case studies of RMSA-TCA. Unit costs in 2014 were around INR 6,000 in Bihar, 16,000 in Odisha, and about 20,000 in Assam. Pay awards will have an effect on these levels since the bulk of recurrent costs are made up of teachers' salaries.

Figure 16: State gross domestic product per capita



Source: Planning commission of India, 2012

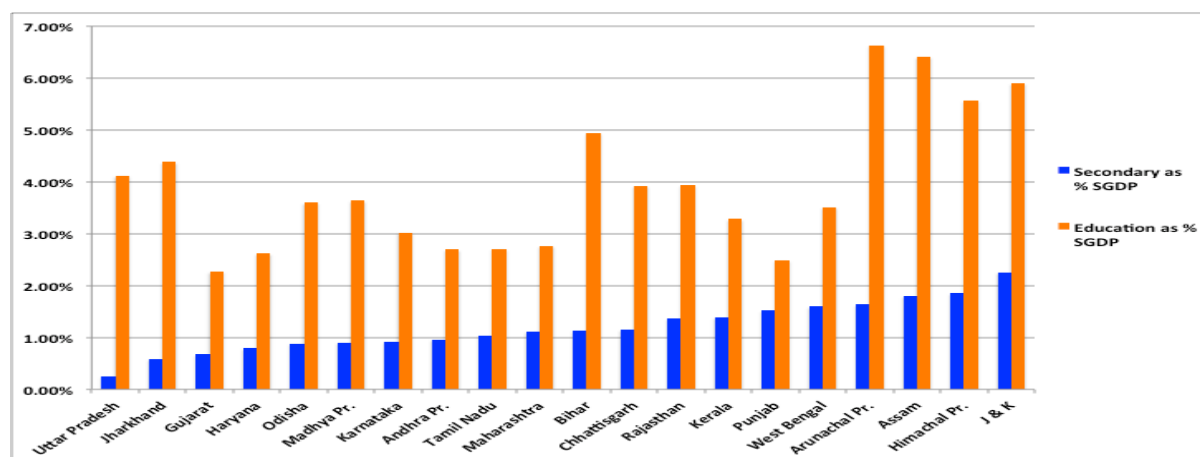
Affordability to the state is determined by unit costs as a percentage of state gross domestic product (SGDP) per capita. Most recent data on SGDP per capita is shown in figure 16. It varies from below INR 50,000 (Bihar, UP, Assam and Jharkhand) to over INR 200,000 (Goa and Delhi). The values for the RMSA-TCA case study states are INR 31,000 for Bihar, INR 42,000 for Assam, and INR 53,000 for Odisha.

Using these values, the unit costs as a percentage of SGDP per capita are 19% for Bihar, 45% for Assam, and 30% for Odisha, showing that there is no strict correlation between actual SGDP and the percentages of SGDP per capita dedicated to secondary schooling expenditure. Large percentages spent are likely in states with high unit costs, which in turn may be due in large part to the presence of many small schools with small pupil teacher ratios, which prove very expensive. A full discussion of unit costs and their variation is included in the RMSA-TCA paper on *Equity and Efficiency in Expansion of Secondary Schools*. That paper concludes that in terms of costs, the lowest range for well-founded secondary schools above the minimum size should be between INR 12,000 per child and INR 20,000 per child depending on location. Very small schools tend to have much higher unit costs.

Third, **the amount spent by state governments on secondary education as a percentage of SGDP** varies widely from less than 0.5% in Uttar Pradesh and Jharkhand to over 1.9% in Assam, Himachal Pradesh, and Jammu and Kashmir. Overall allocations to education cover a wider range from between 2% and 3% of SGDP in Gujarat, Haryana, Andhra Pradesh, Tamil Nadu, Maharashtra and Punjab, and more than 6% in Assam and Arunachal Pradesh (Figure 17). Furthermore, Figure 20 shows that there is no strong correlation between the amount spent on the overall commitment of SGDP to education, and the proportion spent on the secondary level. The relationship is weak but positive; the conclusion

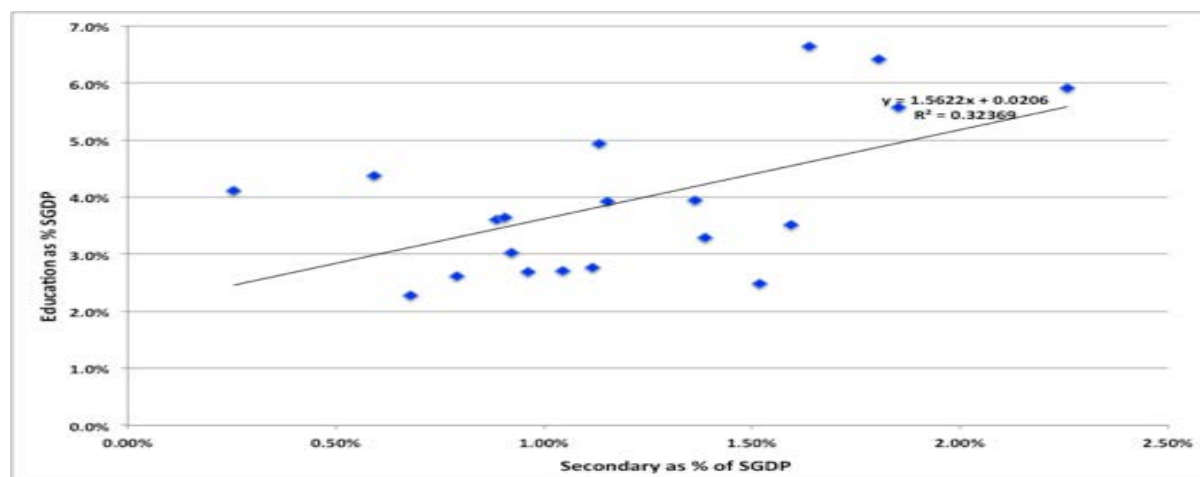
to be drawn is that spending on secondary schooling is one of many policy variables and states make different choices that do not depend directly on the level of priority given to invest at other levels.

Figure 17: Expenditure on secondary education as a % of State GDP



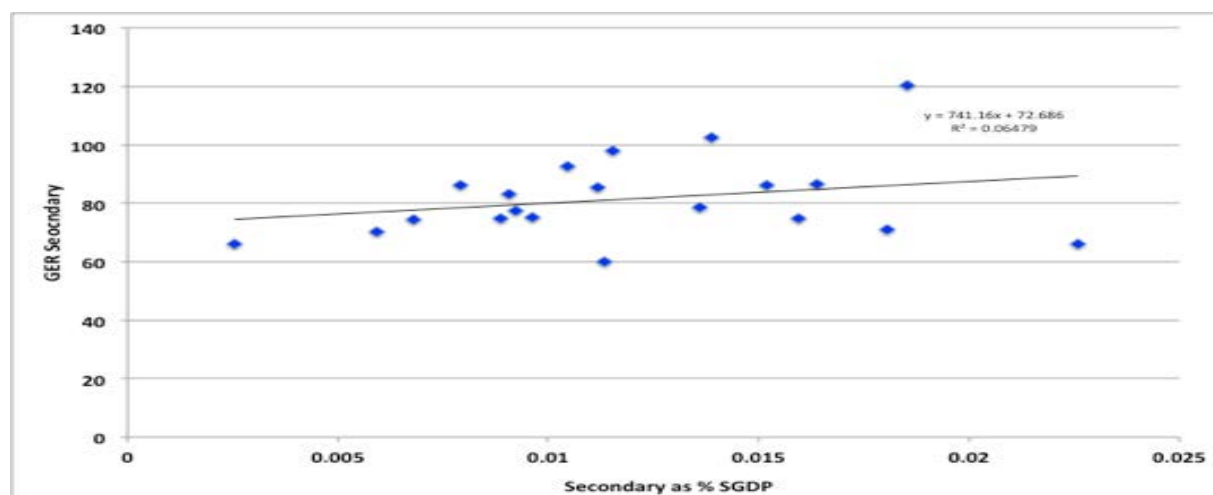
Source: Analysis of budgeted expenditure, MHRD, 2012-13

Figure 18: Education expenditure (overall) and expenditure on the secondary level as percentages of SGDP



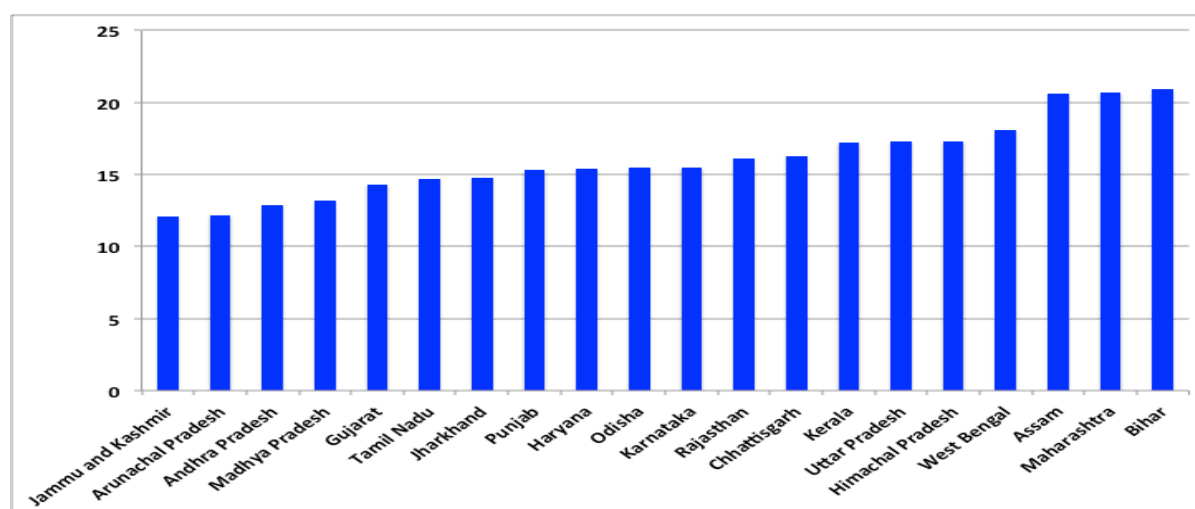
Source: Analysis of budgeted expenditure, MHRD, 2012-13

Not only is there a weak correlation between overall education spending and spending on the secondary level specifically (figure 18), but there is also little correlation between gross enrolment rates at the secondary level and state spending as a percentage of SGDP (Figure 19), indicating that there is not enough sound evidence-based planning and budgeting taking place at the state level. Some of the reasons are the different mixes of private and government schools in different states and the relative cost of teachers' salaries to SGDP.

Figure 19: Secondary level GERs by expenditure on secondary as a percentage of SGDP

Source: Analysis of budgeted expenditure, MHRD, 2012-13

Education as a budgeted item typically accounts for between 10% and 20% of state government spending; in most cases between 12% and 18% (Figure 20). The true value of this resource depends on both the proportional allocation and the size of SGDP. While various states are clearly not dedicating sufficient resources to supporting expansion of participation at the secondary level, particularly for those in quintiles 1 and 2, to ensure sustainability, spending must fall within a range that can be maintained, and that responds to rises or falls in demand. Spending more does not necessarily deliver more: planning and budgeting must be done according to internal efficiency and effectiveness imperatives.

Figure 20: Proportion of state budgets spent on education (in total), 2012-13

Source: Authors calculation based on Analysis of budgeted expenditure, 2012-13

3.2 Affordability

The question of public affordability now is what % of SGDP is it possible and reasonable to spend on secondary education? Actual spending on secondary currently falls between 0.5% and as much as 2% of SGDP. Logically, what can and should be spent on secondary depends on the size of the SGDP, the proportion of SGDP that governments have to spend, and the allocation to education and to secondary education made by the state government. The possibilities are shown in Table 24 using plausible values for the different parameters.

Table 24: Possible state spending patterns as a percentage of SGDP

Government as share SGDP	Education as % Government Budget	Education as % SDGP	Secondary as % Education	Secondary as % of SGDP
20.0%	10.0%	2.0%	15.0%	0.30%
30.0%	10.0%	3.0%	15.0%	0.45%
40.0%	10.0%	4.0%	15.0%	0.60%
20.0%	15.0%	3.0%	15.0%	0.45%
30.0%	15.0%	4.5%	15.0%	0.68%
40.0%	15.0%	6.0%	15.0%	0.90%
20.0%	20.0%	4.0%	15.0%	0.60%
30.0%	20.0%	6.0%	15.0%	0.90%
40.0%	20.0%	8.0%	15.0%	1.20%

Source: Authors calculation based on Analysis of Budgeted expenditure, 2012-13

Most low and middle income countries collect less than 20% of GDP in domestic revenue that can be used to finance services. OECD countries tend to collect more than 40% of GDP. India as a whole collects around 17% of GDP in tax revenue. The fiscal changes related to government sales tax (GST) may increase this but it is unlikely to exceed 20% GDP in the near future.

Education as a share of the government budget is approximately 14%, and state budgets in India allocate from below 10% to just over 20%. This is comparable to many low and middle income countries, and 15% can be assumed to be a plausible mid-range level.

The proportion of GDP allocated to education in India has been targeted at 6%. However this goal has never actually been achieved, and 4% has been the long term average, although it may currently be falling. States are unlikely to spend much more than 4% and may spend less if their ability to raise revenue is reduced by changes in national fiscal policy which are not matched by changes in central allocations to state budgets.

How much of state budgets should be allocated to secondary education is a political decision at the state level. We have seen that allocation to secondary is not correlated with overall allocation to education. Structurally the amount needed for two years of secondary schooling can be estimated from reasonable assumptions about unit costs at different levels. Thus in the Indian system there are 8 years of elementary education, two years of secondary, two years of high school, and three or four years of higher education. On the assumption of cost ratios between levels of 1:2:2.5:10 and universal participation up to grade 10 with 75% at high school and 25% at tertiary level, then about 15% of all expenditure on education would have to be allocated to secondary schooling.

These parameters then lead to estimates for the amount of SGDP likely to be needed for universal access to secondary school. These vary between 0.3% and 1.2%. It suggests that where the percentages are higher than about 0.6%, significantly more tax must be collected or less spent on elementary or higher education. The proportion of SGDP needed for total education expenditures would then need to be greater than 6% and this seems unlikely. States which spend above 0.6% on secondary schooling may be under resourcing primary schools, sponsoring very few students in high schools and higher education. They may also be organising secondary schooling in very expensive ways in terms of unit costs. In some districts of Assam, which spends as much as 2% of SDGP on secondary

schools, there is an inefficient pattern of school utilisation where 70% of schools operate at less than 50% capacity and over 35% of schools enroll fewer than 100 children (RMSA-TCA – Schools Siting Using GIS, 2015).

The implication of this analysis for planning secondary expansion is that costs per student have to be contained within upper limits determined by the proportion of SGDP available to spend. The equation presented below can now be used to estimate the financial burden on states of universal secondary education.

Re arranging the identity:

$$C_2 = X_2 / (GER_2 * A_2)$$

C_2 has to fall in a range that is plausible and financially sustainable from likely state resources provided from domestic revenue and the national planning and budgeting system.

X_2 is assumed to fall within the range of 0.6% to 0.8% of SGDP

GER_2 is assumed to be $GER = 100\%$ though in practice it may need to be 105% or 110% to compensate for repetition and over-age students who may be enrolled.

A_2 is between 3% and 5% depending on whether it is a high or low fertility state.

The variation in unit costs this results in is shown in table 25.

Depending on the population of secondary school-aged children and the level of allocation at state level to secondary education (0.60% to 0.80% SGDP) then costs per student have to be below 30% of SGDP per capita, and could be as low as 20% of SGDP per capita. States spending as much as 45% of SDGP per capita on secondary (for example Assam) may be allocating disproportionate amounts to this level of education (2.1%). On the other hand states spending less than 20% of their budget (such as Bihar) may be under-investing (allocating less than 0.06% of SGDP). Where there is a significant amount of private unsubsidised education this has to be factored in. If 20% to 30% of enrolments do not rely on the public budget then a prorated adjustment may be needed.

These parameters then lead to a figure for the amount of SGDP likely to be needed for universal access. They vary between 0.6% and 0.8%. Where the values are much higher, significantly more tax must be collected or less spent on elementary or higher education. States which spend above these levels may be under resourcing primary schools, sponsoring very few students in higher education, or organising secondary schooling in very expensive ways in relation to unit costs with low pupil teacher ratios and relatively high salaries. Analysing the patterns of expenditure using the methods discussed can help to make judgments about whether existing allocations are likely to be balanced and sustainable, or whether they are in fact too low.

Table 25: Range of unit costs for affordable financing

GER ₂	A ₂	C ₂	X ₂
	Sec Pop as % Pop	Unit Cost	% SGDP Needed
100.0%	3.0%	20.0%	0.60%
100.0%	4.0%	15.0%	0.60%
100.0%	5.0%	12.0%	0.60%
100.0%	3.0%	23.2%	0.70%
100.0%	4.0%	17.5%	0.70%
100.0%	5.0%	14.0%	0.70%
100.0%	3.0%	26.5%	0.80%
100.0%	4.0%	19.9%	0.80%
100.0%	5.0%	16.0%	0.80%

Source: Authors calculation

4. Conclusion

This research report has explored affordability in relation to efforts to achieve RMSA. It has approached the issues both in terms of household expenditure and in terms of public budgets.

Several general conclusions can be reached. First, the direct costs and indirect costs to households of attendance at secondary school vary greatly by school types, and by urban and rural residence. The poorest 20% of households spend less than one ninth of what the richest spend on secondary schooling and the difference has only been growing over time. Average household expenditure in government schools is typically about half that for aided schools and one quarter the average for private schools. Students from unreserved categories spend up to twice as much on school attendance as those from reserved (or disadvantaged) categories, not least because they are often richer. Secondary schooling is typically about 2.5 times more expensive than primary schooling for the poorest, but less than 1.3 times more for the richest who benefit from a much more even pattern of spending by educational level. Higher education is much more expensive, however: for the poorest costs are over eight times as much as at primary level and for the richest about three times more.

Second, the proportion of household expenditure allocated to education and secondary education varies for each quintile and within different social groups. Households spend between 3% and 18% of their income on secondary education with most income groups allocating between 5% and 10%. If only disposable income is considered then the amount involved may represent as much as 50% of the discretionary expenditure of the poorest in government schools. This is both undesirable and likely to be unsustainable. Other types of schools would absorb most if not all of the discretionary expenditure for this group. Such levels of cost can drive households from above the poverty line to below it.

Third the composition of costs to households, meaning the proportions of direct and indirect costs varies. Most of the costs arise from expenditure on uniforms, books, stationary and tuition fees. For government schools these costs are 51% of the total education expenditure and as much as 75% in case of private schools. It appears uniforms cost as much as materials for learning, while transport expenses are generally less than 10% of total costs. Importantly the poorest households spend a smaller proportion on fees largely because most attend government schools.

Significantly and worryingly, the largest expenditure for the poor is on private tuition. The lowest quintile households allocate between 4% and 6% of household expenditure to private tuition but only 1.5%-3.0% is spent by the richest households. Private tuition represents 36% of the total costs associated with attendance at government schools, 22% at aided schools and 13% at private schools. This is certainly inequitable, may be inefficient and is unlikely to be effective in general. To meet otherwise unmanageable costs, households borrow to finance educational costs. In the TCA's sample of over 8,000 households about 40% of those with children in government and aided schools said they borrowed money to support costs. A smaller proportion around 28% - of those with children in private schools also said they borrowed. Fee waivers and scholarships are available to help lighten the burden on poor households, however these are currently vastly insufficient to meet the needs of those in the poorest two quintiles of wealth. Waivers are awarded to between just 5% and 10% of SCs and STs. Scholarships are more common with half of STs in quintile 1 and 2 receiving awards and about 40% of SCs. Surprisingly over 20% of the richest SCs and STs also receive scholarships, representing a highly inequitable and inefficient system of allocations. Worse still, though fee waivers are much more

common amongst the poorest, the amounts given are larger for the richest who receive them. The value of scholarships is about twice as much to those in the richest quintile than for those in the poorest. These findings point to an urgent need to reform the system of fee waivers and scholarships to target support to the poorest and most marginalised. Options for reform include:

- Making fee waivers available to all BPLs and/or those in quintiles 1 to 3 of household expenditure
- Making poverty-linked scholarships available to all BPL and quintile 1 households
- Making pro-poor subsidies equally available to boys and girls
- Requiring private schools to enroll 25% of students from low socioeconomic group households (and providing the funding for these places to schools)

These changes to the current situation of secondary school funding require sufficient public financing of education, though some of the additional support to the poorest could be supplied through diverting scholarships and fee waivers away from wealthy households. Requirements for public expenditure depend on the numbers of children in secondary school, the allocation of public resources available to education, and the costs per child. Demographic transition is a reality in some states, while for others the population of secondary school aged children will continue to grow for some time.

State GDP per capita varies from about INR 30,000 to over INR 200,000, and allocations to secondary education vary from below 0.3% SGDP (e.g. Uttar Pradesh) to over 2% of SGDP (e.g. Assam). Total education spending is between 2% and 6% of SGDP. States spend between 10% and 20% of State budget on education. State politics play a major role in determining where each state falls in terms of the extent of priority places on secondary level education.

Costs per student to the State depend on pupil teacher ratios and teacher salaries. These costs vary greatly, with levels of affordability depending on the level of SGDP and the enrolment rates. Large allocation (over 30% of SGDP per capita) to secondary schooling can produce unbalanced patterns of investment while spending below 0.6% and 0.8% of SGDP on this level is likely to mean under-investment. This paper provides a modeling tool that states can use to calculate more appropriate and sustainable levels of financing.

4.1 Key Policy Issues

The issues of affordability to states and households are central to the success of RMSA. Several policy issues stand out.

Affordability to households need to be defined at the state level in terms of the costs of attendance to households relative to levels of household expenditure. At some threshold of costs households will have to reduce expenditure on basic needs (food, shelter and health) in order to afford school attendance. The poverty line is the minimum level below which fees should be waived, scholarships awarded and transport, books and uniforms subsidised. Yet even this degree of support is likely to be insufficient to ensure that households are not placed under financial stress by educational expenditure, meaning that the threshold should ideally be drawn at a higher level in quintile 2 or quintile 3 depending on the levels of SDGP per capita and patterns of income distribution prevailing in individual states.

- Possible responses to address the current lack of affordability of secondary schooling for poor households: Abolish tuition and other fees for all students from quintiles 1 and 2, and possibly quintile 3, and abolish scholarships and fee waivers for students from quintiles 4 and 5

- Provide free books and learning materials to all non-fee paying students. Consider subsidies for less-poor students, for example those from quintile 3.
- Institute rotating book loan schemes
- Establish more efficient ways of providing uniforms, such as the provision of cloth for stitching within the community
- Create free transportation services for remote areas
- Consider provision of cash transfers to meet other indirect costs of secondary schooling.
- Provide fee-free remedial support/tutoring at government schools
- Institute an information campaign to sensitise communities on the perils of informal sector borrowing at high interest rates

Policy issues for affordability of public financing:

Public financing is essential to provide access at affordable costs to poorer households. Most below the top quintile will not be able to finance secondary school attendance in unsubsidised private for profit schools. Public finance will remain the major source of funds for mass secondary schooling and it will be the provider of last resort to many of the most marginalized communities. Key issues are:

- Take measures to increase state revenues available for education
- Where low proportions of state budgets are currently allocated to education in general and secondary education in particular these should be increased
- Cap spending per secondary school pupil at 30% of SGDP per capita
- Consider cost recovery amongst higher-income groups to generate revenue to fund educational services for the poorest three quintiles.
- Abolish fee waivers and scholarships for those in the richest two quintiles of wealth
- Adopt greater efficiency in provision of services by reducing the numbers of small schools and those with unusually low pupil teacher ratios

5. Annexure

Table 26: Average expenditure on secondary education by income group and State

	Q1 (Poorest)	Q2	Q3	Q4	Q5 (Richest)
JAMMU & KASHMIR	5867	6232	6253	8423	14005
HIMACHAL PRADESH	4537	3984	6137	5871	19855
PUNJAB	4342	6426	9640	15038	28876
CHANDIGARH	4310	9834	4697	26443	27565
UTTARANCHAL	3696	4226	7647	10217	17394
HARYANA	3550	7550	11846	13634	29924
DELHI	8692	8257	15059	20595	45243
RAJASTHAN	3538	5322	6795	8742	13629
UTTAR PRADESH	3504	4242	4581	6420	14559
BIHAR	3305	3647	4950	5670	11340
SIKKIM	4700	14364	3996	8669	17559
ARUNACHAL PRADESH	2603	4552	5527	5674	9798
NAGALAND	3585	9567	11844	11655	14754
MANIPUR	15123	8987	8928	14052	19732
MIZORAM	4616	6475	9151	17784	13607
TRIPURA	5413	7102	6161	8999	25560
MEGHALAYA	6387	5656	8074	7704	12069
ASSAM	2444	4218	3846	5459	9617
WEST BENGAL	4255	6190	6803	9298	23883
JHARKHAND	2764	2853	6242	5985	17402
ODISHA	1931	2837	3471	5083	15780
CHHATTISGARH	1196	1846	2571	4942	14285
MADHYA PRADESH	3117	3401	4354	7616	12793
GUJARAT	3560	4196	6596	9631	18942
DAMAN & DIU	2000	1825	5658	13752	22374
D & N HAVELI	1925	1658	2207	1870	12546
MAHARASHTRA	3489	4056	6420	10251	23867
ANDHRA PRADESH	3320	3373	7315	11377	20970
KARNATAKA	3084	3341	5096	8287	15058
GOA	6882	5046	4834	12385	14403
LAKSHADWEEP	148	478	1003	420	1933
KERALA	6150	5262	7542	11892	15054
TAMIL NADU	2469	5149	6761	8382	18622
PUDUCHERRY	2312	6478	10154	18155	10710
A & N ISLANDS	2517	2085	5238	14615	8835
TELENGANA	4841	6548	8692	10757	17952

Source: Estimates based on 71st round unit level data

Table 27: Average expenditure on secondary education % of household income

	Q1 (Poorest)	Q2	Q3	Q4	Q5 (Richest)
JAMMU & KASHMIR	13.6	9.5	6.8	7.0	6.4
HIMACHAL PRADESH	10.2	6.1	7.0	4.9	8.2
PUNJAB	7.9	7.2	7.7	8.3	8.5
CHANDIGARH	6.0	9.5	3.0	11.1	7.6
UTTARANCHAL	9.0	7.1	8.6	8.9	9.3
HARYANA	6.8	8.7	10.2	8.4	9.6
DELHI	11.8	6.5	8.3	8.6	11.6
RAJASTHAN	7.8	7.7	7.0	6.5	5.5
UTTAR PRADESH	9.5	7.6	5.9	6.0	6.9
BIHAR	8.8	7.0	7.3	5.9	6.0
SIKKIM	11.8	23.3	5.2	8.1	8.7
ARUNACHAL PRADESH	8.4	9.9	8.4	6.5	6.3
NAGALAND	6.9	11.9	11.7	8.7	5.4
MANIPUR	40.5	14.5	11.3	13.3	10.2
MIZORAM	8.7	8.5	7.7	9.9	4.7
TRIPURA	12.1	10.8	7.3	8.3	12.9
MEGHALAYA	14.0	8.3	9.2	6.8	6.3
ASSAM	6.7	7.7	5.4	6.0	5.9
WEST BENGAL	10.9	11.4	9.6	9.3	11.0
JHARKHAND	8.5	5.8	9.4	6.0	8.0
ODISHA	6.8	7.0	6.5	6.8	9.1
CHHATTISGARH	3.9	4.1	4.3	5.7	7.5
MADHYA PRADESH	9.0	6.3	5.8	7.2	6.2
GUJARAT	6.3	5.3	6.4	7.0	7.7
DAMAN & DIU	3.6	1.8	5.2	9.8	9.1
D & N HAVELI	3.6	2.7	2.8	1.6	6.3
MAHARASHTRA	8.1	5.9	6.7	7.7	9.8
ANDHRA PRADESH	7.3	4.9	8.4	10.0	10.3
KARNATAKA	7.3	5.5	6.4	7.8	8.4
GOA	10.6	5.2	4.1	7.3	5.1
LAKSHADWEEP	0.4	0.7	1.2	0.4	1.3
KERALA	10.2	5.8	6.6	7.8	5.8
TAMIL NADU	5.3	7.6	7.7	7.2	9.1
PUDUCHERRY	4.0	8.1	9.2	10.6	3.3
A & N ISLANDS	6.3	3.0	5.2	11.1	4.2
TELENGANA	10.0	9.8	10.0	9.4	9.2

Source: Estimates based on 71st round unit level data

Table 28: Average expenditure on secondary education % of median household income

	Q1 (Poorest)	Q2	Q3	Q4	Q5 (Richest)
JAMMU & KASHMIR	12.2	9.4	6.5	7.0	7.3
HIMACHAL PRADESH	9.5	6.0	6.8	4.9	10.3
PUNJAB	7.2	6.7	8.0	8.4	9.6
CHANDIGARH	6.0	9.1	3.0	11.0	9.2
UTTARANCHAL	8.2	7.0	8.0	9.0	9.7
HARYANA	6.6	8.6	9.9	8.1	11.9
DELHI	11.1	6.9	8.4	8.6	13.7
RAJASTHAN	7.4	7.4	7.1	6.9	6.3
UTTAR PRADESH	9.7	7.3	6.1	6.2	8.1
BIHAR	8.6	6.9	7.1	5.9	6.8
SIKKIM	12.1	22.8	5.1	8.3	9.8
ARUNACHAL PRADESH	7.7	10.5	8.4	6.8	6.8
NAGALAND	6.3	11.4	12.3	9.0	6.0
MANIPUR	37.1	14.4	11.4	13.8	11.0
MIZORAM	8.2	8.6	7.6	9.9	4.9
TRIPURA	11.3	10.8	7.3	8.3	14.2
MEGHALAYA	13.6	8.4	9.3	6.9	6.9
ASSAM	6.8	7.6	5.3	6.1	6.7
WEST BENGAL	10.1	11.5	9.4	9.7	13.1
JHARKHAND	8.2	5.9	9.4	6.1	9.7
ODISHA	6.4	6.8	6.4	7.1	10.1
CHHATTISGARH	3.8	4.0	4.3	5.5	8.2
MADHYA PRADESH	8.7	6.3	6.0	7.5	7.1
GUJARAT	5.9	5.4	6.5	7.3	8.3
DAMAN & DIU	3.6	1.9	5.2	9.6	11.8
D & N HAVELI	3.6	2.8	2.8	1.8	6.5
MAHARASHTRA	7.8	5.6	6.7	8.5	11.0
ANDHRA PRADESH	7.1	4.8	8.5	10.0	11.1
KARNATAKA	7.3	5.6	6.5	7.9	9.2
GOA	10.1	5.3	4.0	6.9	6.0
LAKSHADWEEP	0.4	0.7	1.2	0.4	1.2
KERALA	10.1	5.8	6.6	7.9	7.2
TAMIL NADU	5.1	7.6	7.6	7.3	10.3
PUDUCHERRY	3.9	8.6	8.9	10.1	3.7
A & N ISLANDS	6.0	2.9	5.3	11.1	4.3
TELENGANA	9.6	9.9	10.0	9.4	10.0

Source: Estimates based on 71st round unit level data

Table 29: Average annual expenditure on secondary education

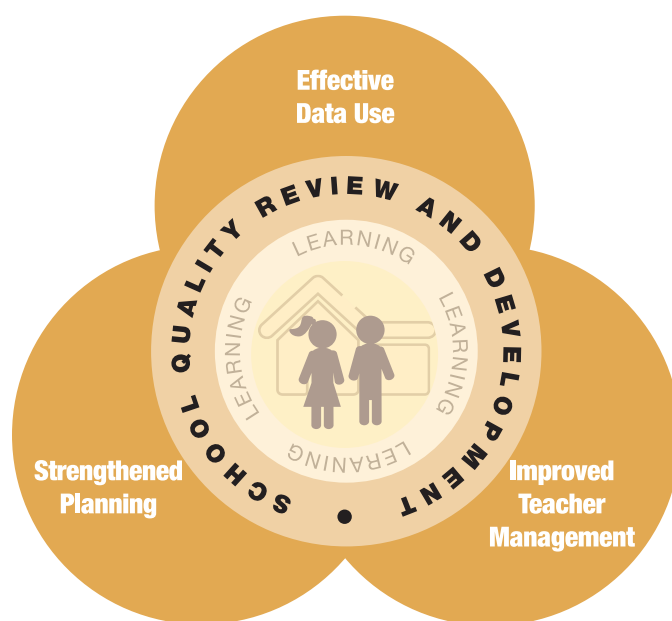
	Government	Private aided	Private un-aided	Not Known
JAMMU & KASHMIR	4993	12875	16084	10000
HIMACHAL PRADESH	3243	25093	18689	
PUNJAB	3891	22948	20792	20640
CHANDIGARH	10821	43872	37910	15830
UTTARANCHAL	4732	10600	23249	
HARYANA	3339	20266	23550	12350
DELHI	8299	35478	51342	
RAJASTHAN	2730	15133	13996	
UTTAR PRADESH	3688	5461	11370	10033
BIHAR	4425	9361	18630	17750
SIKKIM	4679	29833	41317	
ARUNACHAL PRADESH	4871	28786	15570	11200
NAGALAND	4669	12785	13756	
MANIPUR	9478	10304	19023	10250
MIZORAM	8649	14638	21012	
TRIPURA	8570	43871	24241	14325
MEGHALAYA	5067	8771	19967	
ASSAM	3902	13341	17972	
WEST BENGAL	7753	20818	38478	4043
JHARKHAND	3861	8818	20372	
ODISHA	3656	14380	20829	3680
CHHATTISGARH	2098	12193	15820	16000
MADHYA PRADESH	2949	8112	13427	
GUJARAT	4011	12141	20621	105000
DAMAN & DIU	2553	26841	23275	
D & N HAVELI	2058	4650	25825	
MAHARASHTRA	4379	11099	30994	10388
ANDHRA PRADESH	2097	15327	19746	
KARNATAKA	2089	10097	17884	15680
GOA	13617	7768		
LAKSHADWEEP	977			
KERALA	5075	6230	23865	
TAMIL NADU	2193	9242	24801	18700
PUDUCHERRY	2821	15082	22972	
A & N ISLANDS	5758	40000	18750	
TELENGANA	2117	10675	18211	

Source: Estimates based on 71st round unit level data

Table 30: Average expenditure on different heads as % of Average total expenditure on secondary education

	Government				Unaided			
	Course Fee	Books, Stationery & Uniform	Transport	Other Expenditure	Course Fee	Books, Stationery & Uniform	Transport	Other Expenditure
JAMMU & KASHMIR	27	32	16	11	49	19	17	3
HIMACHAL PRADESH	30	48	13	20	58	23	15	5
PUNJAB	38	44	19	5	59	18	17	4
CHANDIGARH	14	25	7	10	49	19	10	5
UTTARANCHAL	28	36	29	16	54	14	10	14
HARYANA	26	50	14	11	65	16	12	3
DELHI	15	30	10	9	62	9	16	4
RAJASTHAN	29	48	36	10	65	17	19	5
UTTAR PRADESH	33	41	10	7	53	22	11	4
BIHAR	16	29	7	7	48	17	13	5
SIKKIM	21	45	23	6	52	16	16	1
ARUNACHAL PRADESH	41	40	2	28	63	17	25	23
NAGALAND	42	40	0	29	60	20	41	9
MANIPUR	22	37	6	10	44	23	15	4
MIZORAM	32	38	6	32	65	17	6	16
TRIPURA	5	22	9	5	15	17	14	3
MEGHALAYA	37	38	27	18	69	12	16	5
ASSAM	18	30	14	13	38	13	13	7
WEST BENGAL	6	24	7	4	39	12	10	2
JHARKHAND	29	32	8	9	54	15	8	7
ODISHA	9	32	3	8	44	14	6	4
CHHATTISGARH	32	45	22	15	58	17	16	5
MADHYA PRADESH	36	38	33	13	58	19	17	6
GUJARAT	16	45	28	14	55	16	17	9
DAMAN & DIU	3	69	10	22	56	14	2	3
D & N HAVELI	13	56	40	25	36	39	15	1
MAHARASHTRA	19	37	21	10	46	11	12	6
ANDHRA PRADESH	22	49	22	11	69	18	9	6
KARNATAKA	24	53	31	18	63	16	13	10
GOA	55	23	33	2				
LAKSHADWEEP	90	40	19	53				
KERALA	11	35	18	7	61	17	13	4
TAMIL NADU	19	50	44	17	63	16	15	8
PUDUCHERRY	9	34	35	13	56	14	21	2
A & N ISLANDS	9	41	13	1	28	21	11	0
TELENGANA	30	59	16	13	71	17	10	3

Source: Estimates based on 71st round unit level data



सीप | seep

Secondary Education Enhancement Programme

Contact

Room No. 308 - 313, Central Institute of Educational Technology
(CIET), NCERT, Sri Aurobindo Marg, New Delhi -110016 INDIA

+91 11 26569925 | contact@rmsatca.org | www.rmsaindia.org/rmsatca

The RMSA Technical Cooperation
Agency is funded by the UK
Department for International
Development (DFID)

