How Much Does India Spend Per Student on Elementary Education?

Ambrish Dongre | Avani Kapur | Vibhu Tewary

October, 2014

How Much Does India Spend Per Student on Elementary Education?*

Ambrish Dongre, Avani Kapur, Vibhu Tewary**

October, 2014

Abstract

Recent years have seen significant changes in the landscape of elementary education (EE) in India. Yet, updated estimates on public and private expenditure on EE are not available. This paper fills the gap by providing a *methodology* and *estimates* of *per student public expenditure* on children enrolled in government schools, and *per student private expenditure* on children enrolled in private unaided schools, for major states in India for the year 2011-12. The paper also provides estimates of total (public and private) expenditure on EE.

Our findings indicate that India spent 1.75% of the GDP (centre and states combined) on EE, while private expenditure was at least 0.71% of the GDP in 2011-12. Richer states spent less on EE as a % of their GDP but more in terms of absolute amounts, compared to the poorer states. Preliminary analysis indicates a strong relationship between per student public expenditure and learning levels. But this does not mean that more expenditure is needed to improve learning levels because government expenditure on EE is highly inefficient. It produces low levels of outcomes at high expenditure. Changing this requires prioritising learning outcomes and demanding accountability toward learning outcomes from all officials, above everything else.

** All the authors were with the Accountability Initiative when this research was carried out. Currently, Ambrish is a Fellow at Centre for Policy Research, and Senior Researcher, Accountability Initiative, New Delhi. Avani is Senior Research and Program Analyst at Accountability Initiative, New Delhi. Vibhu is pursuing higher studies at Duke University, USA.

1 Introduction

The last few years have seen significant changes in the quantum and composition of financing the elementary education (henceforth, EE) sector in India. Traditionally, financing EE was the primary responsibility of individual state governments. But the launch of the Sarva Shiksha Abhiyan (SSA) in 2001 has resulted in a significant increase in Government of India's (GOI) funding for EE. In fact, between 2001 and 2013, GOI's EE budget increased over 11-fold from Rs. 3,577 crore to Rs. 39622 crore[1]. Consequently, while states still contribute the larger share of education expenditure, their share in the total has been declining after 2000 (from 87.7% in 2000-01 to 75.3% in 2010-11)[2,3]. In 2010, Parliament passed the Right to Free and Compulsory Education (RTE) Act - making it an obligation on states to ensure that every child between six and fourteen years of age is in a school. The passing of the RTE Act and the obligations on state governments to implement it has resulted in an increasing reliance, particularly amongst fiscally weaker states, on GOI funds (Accountability Initiative 2013; 2012).

In addition to the changing nature of public expenditure on EE, private expenditure on EE has also increased. The recent District Information System for Education (DISE) numbers indicate that 36% of the students at elementary level are enrolled in schools operated by private management (aided and unaided) (Mehta 2013). Between 2007 and 2013, the percentage of children in private schools in rural India increased from 20% to 29% (ASER 2013). Some states like Kerala have nearly 70% of their children from rural areas in private schools. Households are also spending on education beyond just school fees. 24% of children in rural India attend paid tuitions. In fact, more than half the children in rural parts of Bihar, West Bengal and Odisha take paid tuitions (ASER 2013).

However, despite these changes, updated estimates on the public and private expenditure on EE are not available. This paper attempts to fill this gap. It provides a ***methodology*** and ***estimates*** of *per student* public expenditure on those who are enrolled in government schools, and *per student* private expenditure on those who are enrolled in private schools for 20 major states in India for the year 2011-12[4]. Going further, the paper also provides estimates of total public expenditure and total private expenditure, and hence total expenditure on EE in India.

---

[1] www.Indiabudget.nic.in
[2] Figures are for total education, not just elementary. However, given that elementary education now constitutes the largest share of total elementary education, it is reflective of the overall trend.
[3] MHRD 2013. Figures for 2010-11 are revised estimates.
[4] 2011-12 has been used as it was the latest financial year for which expenditure data is available from state budget documents.

Our findings indicate that India spent 1.75% of the GDP (centre and states combined) on EE, while private expenditure, admittedly an underestimation, was 0.71% of the GDP. Richer states spent less on EE as a % of their GDP, compared to the poorer states. There is significant variation across states in public expenditure per government school student and private expenditure per private school student. Variation in public expenditure per government school student is higher than variation in private expenditure per private school student. On an average, higher the per capita income, higher is the public and private expenditure per government school student and per private school student, respectively. Differences in public expenditure on teacher salaries per government school student are also an important reason why public expenditure per government school student differs so dramatically across the states. Preliminary analysis shows that higher per student public expenditure (and per student private expenditure) is associated with higher proportion of students being able to read or do math of a particular level. But we argue that this fact should not be taken to mean that more expenditure is needed to improve learning levels because government expenditure on EE is highly inefficient. It produces low levels of outcomes at high expenditure. Changing this requires reorganising the financial architecture by prioritising learning outcomes and demanding accountability toward learning outcomes from all officials, above everything else.

The remaining paper is divided into the following sections. Section 2 discusses estimation of public expenditure on elementary education. Section 3 describes methodology for calculating private expenditure. Section 4 discusses the main findings and Section 5 concludes.

2. Estimation of Public Expenditure on Elementary Education (EE)

Initially, education (including EE) was the primary responsibility of individual state governments. In 1976, education was included in the Concurrent List of the Constitution, making it joint responsibility of both, GOI and state governments[5].

Expenditure on EE comes primarily from state governments. States incur most of the recurring expenditure on teacher salaries as well as state-specific entitlement schemes. Calculating expenditure by state governments requires going through individual state budget documents, many of which are not easily available online[6]. Collating is further complicated by the fact that each state budget reports educational expenditure differently. For instance, while some states such as Karnataka and Tamil

---

[5] The Concurrent list consists of 52 items, the legislation of which rests with both the Central government as well as state governments
[6] For more details, see http://accountabilityindia.in/accountabilityblog/2438-rants-public-finance-junkie

Nadu have separate departments for EE, in case of others such as Kerala, it is given under several major heads of accounts which includes 'general education', 'technical education', 'sports and youth services' and 'art and culture' (De and Endow 2008). Moreover, expenditure on EE is funded not just though the education department. For instance, Department of Tribal Welfare provides money for scholarship, uniforms and even building schools, which need to be included in calculating total expenditure on EE. Other departments funding elementary education include Ministry of Railways, Defence, Labour and Employment, Social Justice & Empowerment, Culture, Tribal Development, Development of North Eastern Region and Department of Women & Child Development. In fact, in recent years, a significant share of expenditure on EE is incurred by departments other than department of education, and their proportion has been increasing over time (MHRD 2013)[7].

In recent years, GOI has increased its contribution to EE through the launch of Centrally Sponsored Schemes (CSS) such as Sarva Shiksha Abhiyan (SSA), Kasturba Gandhi Balika Vidyalaya (KGBV) and the Mid-Day Meal (MDM) scheme[8]. CSS have some key features. First, GOI and state governments share funding for CSS. For instance, funds for SSA are shared in 65:35 ratio, while funds for cooking cost under MDM have a 75:25 ratio[9]. Second, CSSs may have different modes of fund transfer. Funds for SSA are routed through an autonomous implementation society (known as the State Implementation Society (SIS)) and thus, do not flow through the state treasury. In contrast, funds for MDM are routed via the state treasury. Detailed financial information on these CSS is available on individual scheme websites.

Given the multiple sources and manner of funding for EE, calculating total expenditure becomes complicated. The next sub-section described the methodology we've adopted to calculate public expenditure on EE.

---

[7] Other departments constituted 32% of the total share of revenue expenditure on education as a whole in 2011-12.
[8] Centrally Sponsored Schemes (CSS) are those that are funded directly by the Central ministries/ departments and implemented by States or their agencies. This assistance tends to be in areas that are predominantly or have traditionally been State subjects, where the Centre wishes to motivate States to take up programmes and provides additional funding.
[9] For special category states, the ratio is 90:10.

2.1 Methodology to calculate Public Expenditure on EE

Calculating total public expenditure on EE involves adding a) expenditure incurred in the state budget available from individual state budget documents, and b) funds flowing through the SIS, from the Approved Annual Plan and Budget (AWP&B) for SSA[10,11].

Data for EE was manually collected from state budget documents. In order to ensure that we included the entire quantum of expenditure, we extracted the specific head of account for EE (2202.01 – revenue expenditure, and 4202.01.201 – capital expenditure) rather than looking only at the department of education. The total expenditure on EE in the state budget, however, includes the state expenditure for SSA but does not include GOI expenditure for SSA. In order to avoid double counting, the state expenditure for SSA was netted out.

Finally, the last step entailed adding the total expenditure incurred under SSA which, as previously mentioned, is transferred through state autonomous bodies. Total SSA expenditure (GOI and state share) was collected from AWP&B documents and Project Approval Board (PAB) minutes, available on the SSA portal[12]. Since PAB minutes are revised frequently based on the supplementary plan, in order to obtain the most updated figures for a particular year, we have used the PAB minutes for the next year. For instance, PAB 2012-13 has been used to obtain 2011-12 figures for expenditures. It is important to note that for some states since the PAB meetings occur before the end of the financial year, the expenditure figures may be actual expenditure till January and then anticipated expenditure for February and March[13].

Table 1 (column 1) gives the total public expenditure on EE. In 2011-12, Uttar Pradesh spent the highest at Rs. 18,126 crores, followed by Maharashtra at over Rs. 15,000 crores. On the other hand, smaller states of Himachal Pradesh, Punjab and Uttarakhand spent less than Rs. 2,000 crores.

---

[10] State budget includes expenditures incurred on MDM and other CSS such as Strengthening of Teacher Training Institutions that flow through the state treasury. Since funds for SSA flowed through the society route, they were added separately. The calculations may miss out some expenditure incurred under general category (where it is difficult to extract the exact expenditure on elementary education), but these would be minimal.

[11] The AWP&B is the total estimated annual work plan submitted by respective state governments to GOI's planning board known as the PAB. Once approved, the AWP&B forms the basis of release of funds under SSA and expenditures incurred.

[12] www.ssa.nic.in

[13] An alternative methodology can be collating total elementary education expenditure from the state budget and simply adding the GOI release for SSA. This would be a simpler method as it would not require netting out state share of SSA from the state budgets. However, SSA has a significant degree of under-spending. Not all GOI releases are spent. Thus, adding GOI releases could be an overestimate of expenditure. Hence, we prefer the methodology used in this paper.

Per Student Expenditures

Looking at total expenditure however, can be misleading as there is significant variation in student population across states. Thus, in order to get a more comparative picture, we calculate public expenditure on EE per student enrolled in government schools[14]. It is derived by dividing total public expenditure by total enrolment in elementary sections (Sections I-VIII) in government schools. Total enrolment was obtained from DISE State Report Cards 2011-12[15].

The results are in column 3 of Table 1, and discussed in section 4. Median expenditure per student is Rs. 12768. Chhattisgarh is just below the median, while Gujarat is just above the median.

3 Methodology to estimate Private Expenditure on EE

This section describes the methodology to estimate private expenditure i.e. expenditure incurred by the households on school fees, exams fees, tuition fees, any other fees, conveyance, books, stationery, uniform, private coaching etc. We use data from 64th round of NSS since it is the latest data which provides information on expenditure on education by households[16].

Our method consists of first, calculating per student private expenditure for those who attend government schools (including local body schools) and private schools (aided and unaided), separately. We adjust these numbers for inflation between 2007-08 and 2011-12. Next we estimate number of students enrolled in government schools and private schools in 2011. Multiplication of per student expenditure and number of students gives total private expenditure on those who attend government schools and private schools separately. Adding these gives us total private expenditure (for all those who are enrolled in schools, whether public or private). Finally, dividing aggregate

---

[14] Note that public expenditure per student enrolled in elementary sections of government schools as estimated here is an over-estimation since the numerator includes expenditure on private aided schools, while denominator doesn't include students in private aided schools. This over-estimation is a matter of concern mainly for states like Kerala, Maharashtra and Tamil Nadu where a significant proportion of students are enrolled in such schools. The other option was to include number of students in private aided schools in the denominator. However, money towards private aided schools is only for teacher salaries, and would have resulted in underestimation of public expenditure per student enrolled in government schools. Further, this would have created problems in estimating private expenditure on EE, which would be clear in section 3.

[15] It is important to note here that we are not calculating the per-child expenditure but the per-student. While expenditure on elementary may include expenditure on out of school children (OOSC), we have not included the number of OOSC in calculating per student expenditures. This however should not make a significant difference as expenditure on mainstreaming OOSC is very small proportion of total elementary education expenditure.

[16] Education in India: 2007-08 – Participation and Expenditure, NSS 64th round, July 2007-June 2008

private expenditure by total number of students enrolled in private schools gives per student private expenditure.

An easier method could have been directly calculating (combined) per student private expenditure without distinguishing between the type of school in which they are enrolled, and adjusting it for inflation. But we avoid this method because (combined) per student private expenditure is essentially a weighted average of per student private expenditure of those who are enrolled in government and private schools weighted by proportion of students attending government and private schools. Since these proportions are likely to have changed substantially, it would be inappropriate to use (combined) per student private expenditure.

The step-by-step process undertaken to calculate private expenditure on elementary education is outlined below:-

Step 1: *Estimating per student private expenditure attending government schools, and private schools, 2007-08*

First, we estimate per student private expenditure for students in grades one to eight, attending government schools, and private schools (i.e. private and private aided) separately, using 2007-08 NSS round (see columns 1 and 2 of Table 2)[17]. With the implementation of the RTE act, Government schools no longer charge any fees, and provide textbooks and uniforms to the enrolled children free of cost. Hence, we have excluded school fees, exam fees, and cost of books and uniforms, while calculating private expenditure for children attending Government schools.

Step 2: *Estimating GDP deflators and inflation between 2007-08 and 2011-12*

Next, per student private expenditure numbers obtained for 2007-08 are updated for the year 2011-12 using inflation numbers calculated on the basis of state-specific GDP deflators[18]. The GDP deflators are calculated as the ratio of current state GDP to constant state GDP for 2007-08 and 2011-12. Inflation rate was thus calculating using the following formula:

$$(\text{GDP Deflator}_{2011-12} - \text{GDP Deflator}_{2007-08}) / \text{GDP Deflator}_{2007-08} \qquad\qquad (I)$$

---

[17] Number of observations is indicated in table A.1 in appendix.
[18] Data on GSDP has been obtained from Central Statistical Organization website, downloaded in July, 2013.

Step 3: *Estimating per student private expenditure attending government schools, and private schools, 2011-12*

Step 1 and 2 enable us to obtain inflation adjusted private expenditure on EE for students attending private schools (column 3 of Table 2), and inflation adjusted private expenditure on EE for students attending government schools (column 4 of Table 2). Median expenditure per student attending private schools is Rs. 5959. Chhattisgarh is just below the median, while Maharashtra is just above the median.

In order to obtain aggregate private expenditures, we need to multiply per student private expenditures by number of students enrolled in government schools and private schools, i.e.

Total Private Expenditure for students attending private schools =
*Per capita private expenditure for students attending private schools * number of students enrolled in private schools* (II)

Total Private Expenditure for students attending government schools =
*Per capita private expenditure for students attending government schools * number of students enrolled in government schools* (III)

Enrolment in government schools is easily available from DISE State Report cards[19]. But number of students enrolled in private schools at the elementary level needs to be estimated[20].

Step 5: *Estimating number of students enrolled in private schools*

We adopt the following strategy to obtain the number of students enrolled in private schools at elementary level:
   a. Obtain number of children in the age group of 6 to 14 years from 2011 Census[21].
   b. Obtain percentage of out of school children in rural areas from ASER 2011 survey[22].

---

[19] DISE State Report Cards, 2011-12 were used for the calculations. These are available online at:
http://www.dise.in/Downloads/Publications/Publications%202011-12/State%20Report%20Cards%202011-12.pdf
Accessed on August 16, 2014.
[20] Though coverage of private unaided schools by DISE has improved over time, it's not complete.
[21] http://www.censusindia.gov.in/2011census/population_enumeration.aspx Accessed on December 19, 2013
[22] ASER survey is generally carried out between September and November every year.

c. Assume that percentage of out of school children is same in rural and urban areas, and thus, obtain number of children in the age group of 6 to 14 years who are enrolled in school[23].

d. Subtract number of children enrolled in government schools (obtained from DISE) from total number of children in the age group of 6-14 years enrolled in school (obtained in (c) above), which gives us number of children enrolled in private schools[24].

All these steps are illustrated in Table 3. Column 6 of Table 3 shows that private schools are highly prevalent across the country. Out of twenty major states, ten states have more than half their students in private schools. In Kerala, 79% students attend a private school. Both, Tamil Nadu and Maharashtra have a high percentage as well, with 60% students attending private schools.

The critical step here is the assumption (c) that proportion of out of school children is identical in rural and urban areas, which is unlikely to be the case[25]. This assumption leads to overestimation of number of out of school children in urban areas, and hence overall number and proportion of out of school children. As a result, we underestimate number of children enrolled in private schools. Therefore, ***estimates obtained in this paper are lower bound of true private expenditure on EE***.

Step 6: *Estimating total Private Expenditure for students attending private schools*

Once we have obtained number of students enrolled in private schools, the next step is to calculate, state-wise, total private expenditure for students enrolled in private schools (as per (II)), and total private expenditure for students enrolled in government schools (as per (III)). The figures are in columns 1 and 2 of Table 4.

Step 7: *Estimating total Private Expenditure for students (whether enrolled in government or private schools)*

Addition of private expenditure for those who are enrolled in private schools, and private expenditure for those who are enrolled in government schools gives us aggregate private expenditure for all

---

[23] No current estimate of proportion of out of schools children in urban areas is available.

[24] A concern here is that not all of the students enrolled in the elementary sections would be in the age group of 6-14 years.

[25] Analysis of data from NSS 64th round suggests that proportion of out of school children is higher in rural areas compared to urban areas.

students who are enrolled in schools at elementary level, government or private (column 3 of Table 4)

Step 8: *Estimating Private expenditure per student (whether enrolled in government or private schools)*

We divide total private expenditure on EE by number of school going children in age-group of 6-14 to obtain private expenditure per student (column 4 of Table 4).

Finally, having calculated both, total public and total private expenditure on EE, we obtain total expenditure on EE (indicated in column 1 of Table 5). Diving total expenditure by number of students enrolled in elementary sections give us per student expenditure on EE (column 2 of Table 5). This per student expenditure is nothing but an addition of per student private expenditure (column 3), and **per student public expenditure** (column 4) on EE. Note that per student public expenditure is derived as total public expenditure on EE divided by number of students enrolled in elementary sections, whether private or government. This number is different from public expenditure per student enrolled in government schools (as reported in column 3 of Table 1).

The next section discusses some of the main findings emerging from this data from the perspective of adequacy and prioritisation of spending on EE, composition and effects on learning outcomes

4 Stylized facts

4.1 India, as a whole, spends around 2.5% of its GDP on EE[26].

As early as 1966, the education commission chaired by D. S. Kothari had recommended that India should allocate at least 6 percent of its national income to education. Similar sentiments have been reiterated since then including in the Common Minimum Programme (CMP) of the UPA government (Tilak 2007).

EE constitutes the largest share of total education financing, 50% in 2011-12. Our calculations indicate that India spends 1.75% of its GDP on EE[27]. This is higher than in 2007-08 and 2008-09

---

[26] Note that the analysis excludes the states in the North-east and the Union Territories (UTs).

when total public expenditure (Centre and State) as a proportion of GDP was 1.51% and 1.52%, respectively (MHRD 2011, MHRD 2012)[28]. **Increased share of EE in GSDP indicates that expenditure on EE has grown more than growth in GSDP**. Private expenditure constitutes 0.71% of overall GSDP. Thus, India, as a whole, spends almost 2.5% of its GDP on EE.

4.2 Higher the per capita income, lower is the public expenditure on EE, as a proportion of GSDP.

While expenditure on EE constitutes the largest share of total education spending, there are differences across states on the proportion of total incomes spent on EE.

Figure 1 shows that higher the per capita income, lower is the proportion of GSDP spent on EE. Bihar which has the lowest per capita income in the country spends about 3.7% of its GSDP on EE, while Haryana, the state with the highest per capita income spends 1.24%. Punjab and Himachal Pradesh offer interesting comparisons. Even though their per capita incomes don't differ dramatically, Himachal Pradesh spends 2.96% of its GSDP, while Punjab spends only 0.64%.

4.3 Per capita income is also an important determinant of absolute levels of per student public spending.

While there is an inverse relationship between per capita income and expenditure on EE (as a % of GSDP), in absolute terms, it's the opposite- higher per capita income is associated with, *on an average*, higher amount spent per student in government schools, as shown in Figure 2[29]. Kerala spends highest amount per student enrolled in government schools, followed by Himachal Pradesh, Maharashtra, and Uttaranchal. On the other hand, Bihar, West Bengal and Jharkhand are the lowest spenders. Surprisingly, Punjab which ranks much higher in terms of per capita income, spends much lower amount per student enrolled in government schools compared to all relatively less developed states except the three mentioned above.

---

[27] We add up the spending on EE and divide it by sum of GSDP.

[28] See Mehrotra (2004) for an international comparison of spending on elementary education as a % of GNP. Further, see Chakrabarti and Joglekar (2006), Tilak (2006) and Tilak (2007) for past trends on spending on public education (not just elementary) as a % of GDP.

[29] Similarly, *on an average*, higher the per capita income, higher is the amount spent per student enrolled in private school. Households in Himachal Pradesh, Punjab and Haryana spend the highest per student enrolled in private schools. On the other hand, households in Uttar Pradesh, Madhya Pradesh, Bihar and Jharkhand spend the lowest amount per student enrolled in private schools. Results are available with the author.

These numbers raise important questions. Low expenditure (in relative and absolute terms) on EE, especially in poorer States can be due to low resource base, relatively low priority attached to EE or (relatively) higher number of school-age children (Mehrotra 2004). One of the important goals of CSSs such as SSA was to address the issue of low resource base and fiscal constraint faced by the States to increase their expenditure on EE. Consequently, as mentioned in the beginning, GOI funding for EE increased significantly. Per capita income, however, continue to play an important role in per student spending across states, even today. Further research would be needed to understand whether this difference is a consequence of fiscally weaker states still trying to "catch-up" with states with higher per capita income or whether there is a "substitution effect" i.e., states, in reaction to increased central funding, may be using centre's CSS money to substitute their own expenditure (from their own tax collection). Consequently, this results in 'crowding out' of state's own expenditure and increasing dependence of central financing. (Mukherjee 2013; Chakraborty, Mukherjee and Amarnath, 2009). How would the future Finance Commissions tackle this divergence remains to be seen[30].

Next, we break down public expenditure on EE to understand its composition, and thereby reveal choices made by the state about where and how they allocate and spend this money.

4.4 Expenditure on teacher salaries constitutes the largest share of overall EE budget at state level.

Expenditure on teacher salaries constitutes the largest share of overall EE budget at state level. An analysis of EE budget of six states indicates that expenditure on teacher salary is at least around 60% of total EE budget (column 1, Table 6)[31]. In states like Rajasthan, share of teacher salary is close to 90%[32].

Expenditure on teacher salaries is determined by proportion of regular and para teachers, and their respective pay-scales. There is wide variation across states in both these aspects. States such as Bihar and Madhya Pradesh have higher proportion of para-teachers who are paid much lower than regular

---

[30] One potential option can be the equalisation grants undertaken for the first time in the 12th Finance Commission.

[31] A more detailed data on public expenditure on EE was collected for these six states.

[32] A number of research studies (Kingdon 2005, Muralidharan and Kremer 2007, Goyal and Pandey 2009) have shown that teacher salaries also contribute to differences between per student public expenditures on those going to government schools versus per student private expenditure on those going to private schools. In fact, after the Sixth Pay Commission, private school teachers are, on average paid, less than 1/6th to 1/8th the salary of government school teachers (Goyal and Pandey 2009, Muralidharan 2014).

teachers. Surveys conducted by Accountability Initiative reveal that para-teachers in Nalanda and Purnea (in Bihar) receive Rs. 6400-6800 per month, while the regular teachers receive around Rs. 23,000 to 28,000, on an average. Corresponding figures are around Rs. 6,000 and Rs. 17,800 for Sagar in Madhya Pradesh (Accountability Initiative 2013). This allows the states to hire a larger number of teachers at much lower cost, keep teacher expenditure per student relatively low (column 3, Table 6). More importantly, it gives the states some flexibility to spend on other components which they deem essential for provision of EE. Thus, as can be seen in Table 7, in Bihar and Andhra Pradesh, total expenditure on teachers (salaries, training and teaching inputs) was relatively lower than in Rajasthan and Himachal Pradesh. Consequently, both states spent a larger proportion on school infrastructure at nearly 20%. Interestingly, Bihar also spends a significant proportion of its total EE expenditure on children entitlements schemes to incentivise children to enrol and attend a school (Accountability Initiative, 2013).

Finally, the following sub-section explores the relation between expenditure and learning outcomes. Note that the observations here are based on very preliminary analysis. The limited purpose here is to point out possible directions in which research can be extended, and not to draw any conclusions.

4.5 Is there a relationship between Expenditure and Learning Outcomes

Figures 3-6 show the relation between public expenditure per student in government school, and reading and math levels of students (calculated from ASER 2011)[33],[34]. The figures indicate a positive relation between the two, i.e. higher per student public expenditure is associated with higher proportion of students being able to read/ do math at a particular level[35].

Does it imply that more should be spent per student in a government school if we want to improve the learning outcomes? Not really. We must look at what the opportunity costs or alternative uses are of this expenditure. Even though a full-fledged analysis is beyond the purview of this paper, a simple example would be comparing per student costs and learning outcomes in government and private schools as shown in Table 8. It indicates that, in every state, learning outcomes in private schools are better than the government schools, while per student spending is much lower as compared to

---

[33] Results are similar when ASER 2012 numbers are used.

[34] We have looked at expenditures rather than allocations as allocations reflect intention to spend and do not reflect the reality of both quantum of funds available as well as state capacity for expenditure.

[35] The relationship holds even after controlling for per capita income (results not shown here). Similar relationship is found between private expenditure on those who attend private schools and learning outcomes.

government schools[36]. This 'double' inefficiency ends up imposing a huge burden on India, amounting to 2.78% of GDP[37]. This reveals that there is a dire need to ask hard questions, and take tough decisions to make expenditure more 'efficient', to get more bang for the buck, so to speak.

Since 2012, there has been some important policy shifts. The 12th Five Year Plan explicitly articulated learning improvement to be a key policy goal. This was followed by MHRDs renewed articulation of the importance of meeting the learning challenge. Consequently, MHRD launched the 'Padhe Bharat, Badhe Bharat' scheme with a focus on learning. But is this going to be enough to solve the 'learning challenge'?

This scheme is a good starting point but the need of the hour is to rework the education system such that it moves away from its preoccupation with input delivery to one that prioritises learning outcomes. This pre-occupation has left us in a situation where means to an end have become an end itself. How to get the system to prioritise learning outcomes not just in policy documents but also in actual practice, i.e. in terms of plans, finances and actions of education bureaucracy all the way down to schools is going to India's greatest challenge in elementary education in the next few years.

---

[36] The difference in learning outcomes persists even when students' background characteristics are taken into account, although the magnitude declines. See Dr. Wilima Wadhaw's article in ASER 2009. For more on effects on learning outcomes of attending private schools vis-a-vis government schools, see Desai et al (2008), French and Kingdon (2010), Goyal (2009), Muralidharan and Sundararaman (2013), and Singh (2013). This literature confirms that private schools are more effective in improving learning outcomes.

[37] For details about this startling finding, see Pritchett and Aiyar 2014, *forthcoming*

References

Accountability Initiative (2012): *PAISA Report*. Centre for Policy Research, New Delhi.

Accountability Initiative (2013): *PAISA District Studies (2013)*, Centre for Policy Research, New Delhi (*forthcoming)*.

ASER Centre (2011): *Annual Status of Education Report*. New Delhi.

ASER Centre (2013): *Annual Status of Education Report*. New Delhi.

Chakrabarti A and R Joglekar (2006): "Determinants of Expenditure on Education: An Empirical Analysis Using State Level Data", *Economic and Political Weekly* Vol. 41, No. 15 (Apr. 15-21, 2006), pp. 1465-1472.

Chakraborty, P, A Mukherjee and H. K. Amarnath (2009): "Macro Policy Reform and Sub National Finance: Why is the Policy Space of the States Shrinking? ", *Economic and Political Weekly, Vol.XLIV, No.14*, New Delhi

De, A and T Endow (2008): "Public Expenditure on Education in India: Recent Trends and Outcomes", *RECOUP Working Paper No. 18*, Collaborative Research and Dissemination (CORD), New Delhi.

Desai, S, A Dubey, R Vanneman and R Banerjee (2008): "Private Schooling in India: A New Educational Landscape", *Brookings-NCAER India Policy Forum*, Vol. 5, The Brookings Institution.

French, R and G Kingdon (2010): "The Relative Effectiveness of Private and Government Schools in Rural India: Evidence from ASER Data", *DoQSS Working Paper*, No. 10-03, Institute of Education, University of London.

Goyal, S (2009): "Inside the House of Learning: The Relative Performance of Public and Private Schools in Orissa", *Education Economics*, 17(3), pp 315-327

Goyal, S and P Pandey (2009): "How do Government and Private Schools Differ? Findings from Two Large Indian States", *South Asia Human Development Sector Report 30*, World Bank, Washington DC. Available online at:
http://datatopics.worldbank.org/hnp/files/edstats/INDwp09b.pdf

Kingdon, G. (2005): "Private and Public Schooling: The Indian Experience", prepared for conference *Mobilizing the Private Sector for Public Education (Conference Volume - forthcoming).* Kennedy School of Government, Harvard University, 2006.
http://www.hks.harvard.edu/pepg/PDF/events/MPSPE/PEPG-05-15geeta.pdf

Mehrotra, S (2004): "Reforming public spending on education and mobilising resources: Lessons from international experience", *Economic and Political Weekly*, Vol 39 No. 09, February 28, 2004, pp 987-997.

Mehta, A. C. (2013*): "*Elementary Education in India: Progress Towards UEE: Analytical Tables, 2012-13", *National University of Educational Planning and Administration and Department of School Education and Literacy*, Ministry of Human Resource Development, Government of India.

Ministry of Human Resource Development (2013): *Analysis of Budgeted Expenditure on Education 2009-10 to 2011-12,* Ministry of Human Resource Development, Government of India, New Delhi.

Ministry of Human Resource Development (2012): *Analysis of Budgeted Expenditure on Education 2008-09 to 2010-11,* Ministry of Human Resource Development, Government of India, New Delhi.

Ministry of Human Resource Development (2011): *Analysis of Budgeted Expenditure on Education 2007-08 to 2009-10,* Ministry of Human Resource Development, Government of India, New Delhi.

Mukherjee, A (2013): "Targeting Education Financing on the Marginalized: Lessons from Implementation of Sarva Shiksha Abhiyan and Right to Education in India", Background paper prepared for Education for All Global Monitoring Report 2013/4, UNESCO.

Muralidharan, K (2014): "Understanding the relative effectiveness of government and private schools in India", *Ideas for India*. Available at: http://ideasforindia.in/article.aspx?article_id=245 [Accessed 17 Aug. 2014].

Muralidharan, K and M Kremer (2007): "Public and Private Schools in Rural India", Prepared for conference *Mobilizing the Private Sector for Public Education* (Conference Volume - forthcoming). Kennedy School of Government, Harvard University, 2006.
http://econweb.ucsd.edu/~kamurali/papers/Published%20Edited%20Volume%20Chapters/Public%20and%20private%20schools%20in%20rural%20india%20%28Final%20Pre-Publication%29.pdf

Muralidharan, K, J Das, A Holla, A Mohpal (2014): "The Fiscal Cost of Weak Governance: Evidence from Teacher Absence in India", *NBER Working Paper No. 20299.* July 2014.

Muralidharan, K and V Sundararaman (2013): "The Aggregate Effect of School Choice: Evidence from a Two-Stage Experiment in India", *NBER Working Paper* no. 19441, National Bureau of Economic Research, Cambridge, MA.

Singh, A (2013): "Size and Source of the Private School Premium in Test Scores in India", *Mimeo,* University of Oxford.

Tilak, J. B. (2006*): "*On Allocating 6 percent of GDP to Education"*, Economic and Political Weekly* Vol. 41, No. 7 (Feb. 18-24, 2006), pp. 613-618.

Tilak, J. B. (2007): "The Kothari Commission and Financing of Education*", Economic and Political Weekly* Vol. 41, No. 7 (Feb. 18-24, 2006), pp. 613-618.

Table 1: Public Expenditure on EE (2011-12)

State	1 Total Public Expenditure (Rs. crore)	2 Enrolment in Government Schools (According to DISE)	3 Per govt. school student public expenditure (incl. students only in public schools; excluding private aided schools)
Andhra Pradesh	8561	6175060	13864
Assam	4539	4174185	10874
Bihar	9265	20519815	4515
Chhattisgarh	4608	3789376	12160
Gujarat	8003	5982181	13377
Haryana	3805	2135714	17817
Himachal Pradesh	1883	695417	27073
Jammu & Kashmir	2110	1152609	18304
Jharkhand	3251	5390338	6031
Karnataka	7319	4783689	15300
Kerala	4062	1007249	40328
Madhya Pradesh	8244.5	10221216	8066
Maharashtra	15188	7231470	21002
Odisha	4688	5565229	8424
Punjab	1662	2193899	7577
Rajasthan	8283.5	7155509	11576
Tamil Nadu	6357	4226225	15042
Uttaranchal	1870	907931	20596
Uttar Pradesh	18126	19585396	9255
West Bengal	7897	13256933	5957

Source: Author calculations

Table 2: Private Expenditure on EE - 2007-08 and 2011-12

State	1 Private expenditure per student (Private Aided and unaided)- NSS 2007-08	2 Private expenditure per student (Government and Local)- NSS 2007-08	3 Private expenditure per student (Private Aided and unaided)- Inflation adjusted, 2011-12	4 Private expenditure per student (Government and Local)- Inflation Adjusted, 2011-12
Andhra Pradesh	4050.67	146.01	5507.44	198.52
Assam	4871.78	237.36	6552.79	319.26
Bihar	3233.42	242.29	4630.26	346.97
Chhattisgarh	4559.37	101.54	5957.46	132.67
Gujarat	5023.02	207.19	6580.52	271.44
Haryana	6260.33	332.88	8949.02	475.84
Himachal Pradesh	8034.73	285.21	11128.76	395.04
Jammu & Kashmir	4919.76	402.68	6987.69	571.93
Jharkhand	3869.00	172.25	4695.89	209.06
Karnataka	4664.68	135.03	6361.91	184.16
Kerala	4101.34	342.48	5413.46	452.05
Madhya Pradesh	2984.25	144.92	3866.46	187.76
Maharashtra	4425.29	212.46	5961.03	286.19
Odisha	4382.88	306.36	5761.21	402.71
Punjab	6772.28	305.13	9081.77	409.18
Rajasthan	3242.36	162.42	4871.59	244.03
Tamil Nadu	5634.55	203.05	7518.85	270.95
Uttaranchal	4316.50	260.34	5693.78	343.41
Uttar Pradesh	2284.67	168.35	3106.68	228.92
West Bengal	4927.57	541.95	6788.98	746.68

Source: Author calculations using NSS 2007-08

Table 3: Estimating Number & Proportion of Students in Private Schools (Elementary Level)

State	1 Enrolment in Government Schools (According to DISE)	2 % Out of school Children (6-14)- ASER 2011	3 Population 6-14 (Census 2011)	4 Total Enrolment	5 Private enrolment (Total Enrolment - Government Enrolment)	6 % of children enrolled in private schools (private & private Aided)
Andhra Pradesh	6175060	2.80%	14064894	13671076.97	7496016.97	54.83
Assam	4174185	4.19%	6311350	6046904.44	1872719.44	30.97
Bihar	20519815	2.95%	25884060	25120480.23	4600665.23	18.31
Chhattisgarh	3789376	2.40%	5078983	4957087.41	1167711.41	23.56
Gujarat	5982181	2.66%	10799915	10512637.26	4530456.26	43.10
Haryana	2135714	1.37%	4647445	4583775.00	2448061.00	53.41
Himachal Pradesh	695417	0.55%	1112722	1106602.03	411185.03	37.16
Jammu & Kashmir	1152609	2.46%	2522690	2460631.83	1308022.83	53.16
Jharkhand	5390338	4.65%	7378660	7035552.31	1645214.31	23.38
Karnataka	4783689	2.79%	9890833	9614878.76	4831189.76	50.25
Kerala	1007249	0.08%	4865196	4861303.84	3854054.84	79.28
Madhya Pradesh	10221216	2.23%	15159950	14821883.12	4600667.12	31.04
Maharashtra	7231470	1.08%	18544808	18344524.07	11113054.07	60.58
Odisha	5565229	3.71%	7595282	7313497.04	1748268.04	23.90
Punjab	2193899	1.56%	4472651	4402877.64	2208978.64	50.17
Rajasthan	7155509	4.49%	14716568	14055794.10	6900285.10	49.09
Tamil Nadu	4226225	0.85%	10649321	10558801.77	6332576.77	59.97
Uttaranchal	907931	1.09%	1986077	1964428.76	1056497.76	53.78
Uttar Pradesh	19585396	6.13%	45667504	42868086.00	23282690.00	54.31
West Bengal	13256933	4.32%	15724524	15045224.56	1788291.56	11.89

Source: Author calculations

Table 4: Total & Per Student Private Expenditure (2011-12)

State	1 Total Private Expenditure for Students attending Private schools (Rs. Crore)	2 Total Private Expenditure for students attending Public Schools (Rs. Crore)	3 Total Private Expenditure for students attending private schools and public schools (Rs. Crore)	4 Per student private expenditure (Rs.)
Andhra Pradesh	4128.39	122.59	4250.97	3109.46
Assam	1227.15	133.27	1360.42	2249.78
Bihar	2130.23	711.97	2842.20	1131.43
Chhattisgarh	695.66	50.27	745.93	1504.78
Gujarat	2981.28	162.38	3143.66	2990.36
Haryana	2190.77	101.63	2292.40	5001.12
Himachal Pradesh	457.60	27.47	485.07	4383.42
Jammu & Kashmir	914.01	65.92	979.93	3982.42
Jharkhand	772.57	112.69	885.27	1258.27
Karnataka	3073.56	88.09	3161.65	3288.29
Kerala	2086.38	45.53	2131.91	4385.47
Madhya Pradesh	1778.83	191.91	1970.74	1329.62
Maharashtra	6624.53	206.96	6831.48	3723.99
Odisha	1007.21	224.12	1231.33	1683.64
Punjab	2006.14	89.77	2095.91	4760.33
Rajasthan	3361.54	174.61	3536.15	2515.79
Tamil Nadu	4761.37	114.51	4875.88	4617.83
Uttaranchal	601.55	31.18	632.73	3220.92
Uttar Pradesh	7233.18	448.35	7681.54	1791.90
West Bengal	1214.07	989.86	2203.93	1464.87

Source: Author calculations

Table 5: Public, Private and Combined Expenditure (total and per capita) on EE

State	1 Total Expenditure on EE (Rs. Crore)	2 Per Student Expenditure on EE (Total Expenditure / Total Enrolment)	3 Per student private expenditure on EE (incl govt and private school students)	4 Per student public expenditure on EE (incl. govt and private school students)	5 Gross Domestic State Product (GSDP, Rs. Crore)	6 [Total Expenditure/ GSDP]	7 Per Capita Income (NSDP)	8 [Per Student total expenditure/Per capita income]
Andhra Pradesh	12811.97	9371.59	3109.46	6262.13	655181	1.96	68969.69	13.59
Assam	5899.53	9756.28	2249.78	7506.5	126544	4.66	37250	26.19
Bihar	11945.14	4755.14	1131.43	3623.71	246487	4.85	22691.12	20.96
Chhattisgarh	5353.88	10800.45	1504.78	9295.66	139515	3.84	46743.45	23.11
Gujarat	11146.22	10602.69	2990.36	7612.33	611767	1.82	89667.98	11.82
Haryana	6097.52	13302.39	5001.12	8301.28	307606	1.98	109063.55	12.2
Himachal Pradesh	2372.82	21442.41	4383.42	17058.99	63812	3.72	74693.52	28.71
Jammu & Kashmir	3089.67	12556.41	3982.42	8573.98	65979	4.68	44533	28.2
Jharkhand	4136.01	5878.73	1258.27	4620.46	130505	3.17	35652.14	16.49
Karnataka	10480.56	10900.36	3288.29	7612.06	463243	2.26	69051	15.79
Kerala	6193.98	12741.39	4385.47	8355.92	315206	1.97	80924	15.74
Madhya Pradesh	10966.31	7398.73	1329.62	6069.11	309687	3.54	37994.5	19.47
Maharashtra	21901.2	11938.82	3723.99	8214.83	1248453	1.75	101314.29	11.78
Odisha	5919.58	8094.04	1683.64	6410.4	215899	2.74	41896	19.32
Punjab	3758.14	8535.64	4760.33	3775.31	259223	1.45	78593.94	10.86
Rajasthan	13462.77	9578.09	2515.79	7062.3	416755	3.23	53735.27	17.82
Tamil Nadu	11233.15	10638.66	4617.83	6020.83	639025	1.76	84496	12.59
Uttaranchal	2502.72	12740.21	3220.92	9519.29	93162	2.69	79939.81	15.94
Uttar Pradesh	25807.66	6020.25	1791.9	4228.35	684173	3.77	30050.69	20.03
West Bengal	10101.28	6713.95	1464.87	5249.08	544282	1.86	55222	12.16

Source: Author calculations

Table 6: Per student teacher salaries

States	Proportion of budget for Teacher Salaries	Public expenditure per government school student	Public expenditure on **teacher salaries** per government school student	Public expenditure **excluding teacher salaries** per government school student
Andhra Pradesh	66%	13864	9097	4768
Bihar	59%	4515	2659	1857
Himachal Pradesh	80%	27073	21582	5492
Madhya Pradesh	63%	8066	5058	3008
Maharashtra	66%	21002	13893	7110
Rajasthan	87%	11576	10058	1518

Source: Author calculations

Table 7: Component-wise expenditures on EE

States/Components	Andhra Pradesh	Bihar	Madhya Pradesh	Maharashtra	Rajasthan	Himachal Pradesh
Teachers (Salary, training and teaching inputs)	69%	62%	74%	69%	88%	82%
School Infrastructure	17%	18%	11%	5%	5%	4%
Children Entitlements and Children Mainstreaming	6%	13%	7%	3%	1%	2%
Quality	1%	0%	1%	0%	0%	1%
Management	3%	1%	5%	14%	5%	6%
Misc	0%	-5%	1%	0%	0%	1%
MDM	4%	11%	1%	9%	NA	5%
Total	100%	100%	100%	100%	100%	100%

Source: Accountability Initiative (2013)

Table 8: Per Student Public and Private Expenditure, and Learning Outcomes

State	1	2	3	4	5	6	7	8	9	10	11
	% children in std. 1-2 who can read letters, words or more		% children in std. 3-5 who can read std. 1 text or more		% children in std. 1-2 who can recognise numbers 1-9 or more		% children in std. 3-5 who can do subtraction or more		Private expenditure per student enrolled in private school	Public expenditure per student enrolled in gov. school	Ratio (col. 10/ col. 9)
	Gov. school	Private School	Gov. school	Private School	Gov. school	Private School	Gov. school	Private School			
Andhra Pradesh	81.39	94.14	65.81	78.47	85.02	95.08	59.89	72.61	5507.44	13864	2.52
Assam	70.8	85.87	48.18	59.63	73.5	85.83	33.6	48.25	6552.79	10874	1.66
Bihar	57.87	83.17	51.95	79.45	61.75	84.14	48.76	76.02	4630.26	4515	0.98
Chhattisgarh	73.35	90.38	51.07	68.39	72.24	89.5	38.56	58.09	5957.46	12160	2.04
Gujarat	78.73	92.93	62.72	77.42	78.89	91.69	43.39	64.17	6580.52	13377	2.03
Haryana	71.43	92.03	59.55	85.28	75.09	92.83	52.81	80.95	8949.02	17817	1.99
Himachal Pradesh	89.82	97.91	79.95	90.5	93.21	98.42	70.97	85.74	11128.76	27073	2.43
Jammu & Kashmir	86.92	96.66	45.81	79.55	88.67	96.73	39.14	73.6	6987.69	18304	2.62
Jharkhand	61.05	83.61	46.97	69.52	61.07	83.65	38.47	59.24	4695.89	6031	1.28
Karnataka	83.35	93.32	59.82	69.27	83.63	94.09	46.45	58.98	6361.91	15300	2.40
Kerala	95.68	97.91	80.06	83.97	95.34	97.69	61.41	71.42	5413.46	40328	7.45
Madhya Pradesh	59.92	82.65	39.31	67.56	58.52	81.01	26.33	50.88	3866.46	8066	2.09
Maharashtra	90.22	93.01	74.88	85.48	90.6	92.35	51.59	65.67	5961.03	21002	3.52
Odisha	66.05	89.32	53.5	78.81	63.8	88.45	40.1	66.81	5761.21	8424	1.46
Punjab	85.99	89.75	75.28	75.96	88.44	93.11	72.55	75.2	9081.77	7577	0.83
Rajasthan	55.93	80.79	44.91	67.5	57.45	80.85	31.65	57.84	4871.59	11576	2.38
Tamil Nadu	58.94	71.85	51.43	49.68	65.19	77.88	40.59	49.65	7518.85	15042	2.00
Uttaranchal	75.37	89.66	64.07	77.24	73.12	89.03	49.75	66.59	5693.78	20596	3.62
Uttar Pradesh	52.25	79.49	34.67	66.06	54.38	81.63	23.77	50.58	3106.68	9255	2.98
West Bengal	79.49	93.44	58.23	74.77	84.24	94.39	50.95	67.28	6788.98	5957	0.88

Figure 1: Per Capita Income & Public Expenditure on EE (as a % of GSDP)
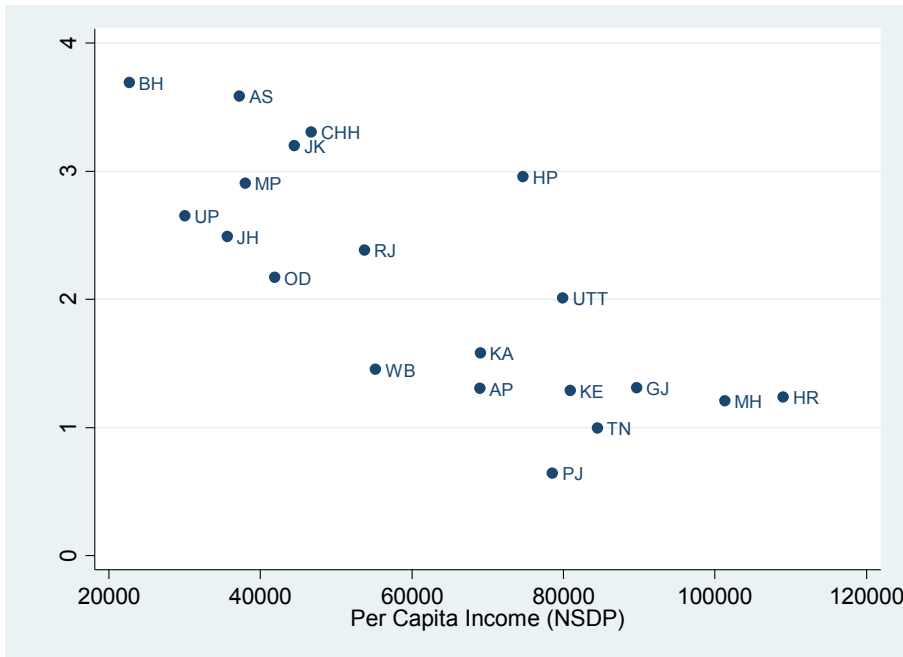
Source: Author calculations, Data collected from Central Statistical Organization

Figure 2: Per Capita Income and Public Expenditure per student enrolled in government school (Rs.)
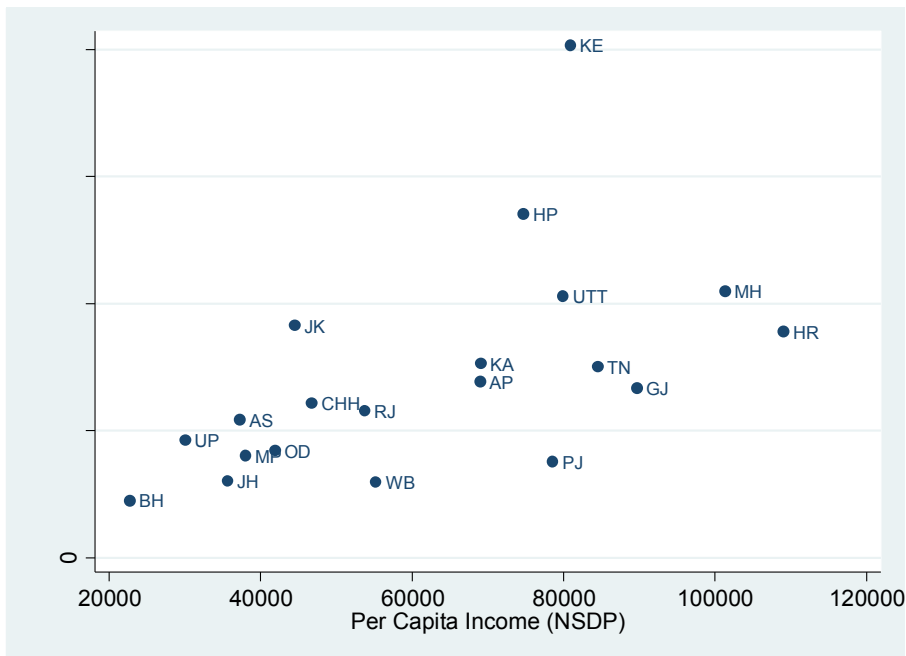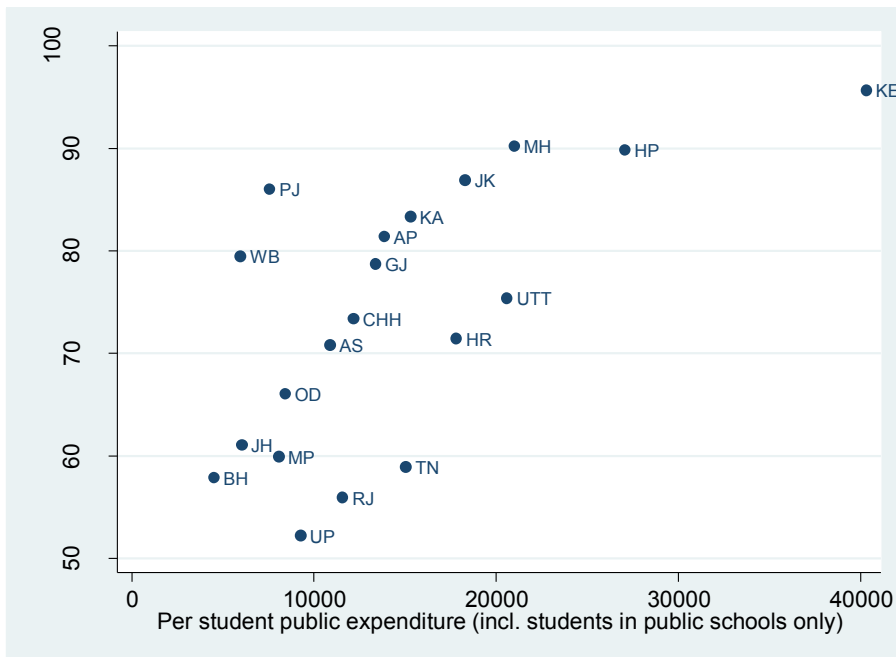
Figure 3: Public expenditure per student enrolled in government schools and Proportion of Children in Grades 1 and 2 who can read letters, words or more

Source: Author calculations from ASER 2011

Figure 4: Public expenditure per student enrolled in government schools and Proportion of Children in Grades 3 to 5 who can read grade 1 level text
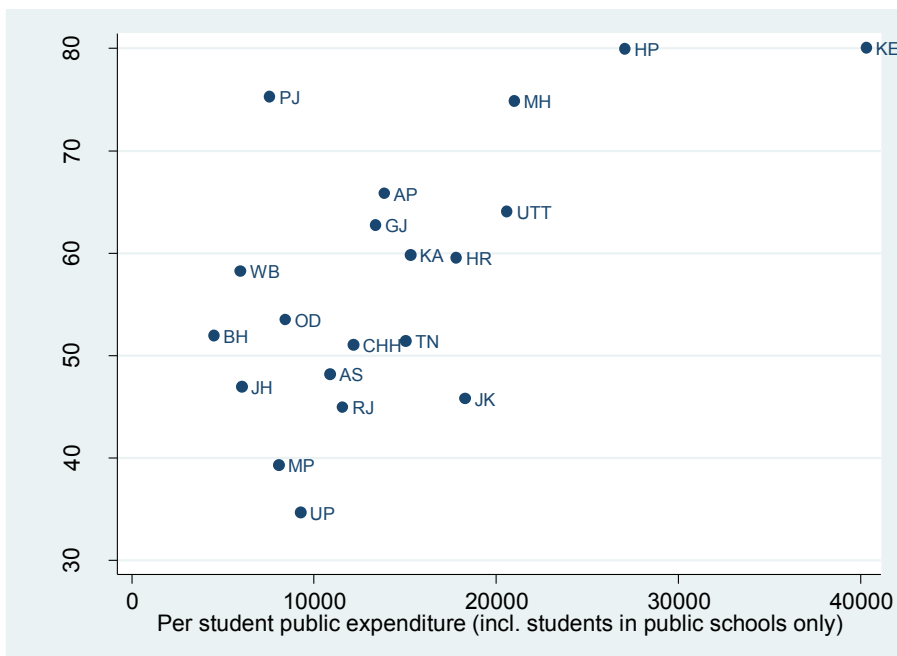
Figure 5: Public expenditure per student enrolled in government schools and Proportion of Children in Grades 1 to 2 who can recognise numbers 1-9 or more
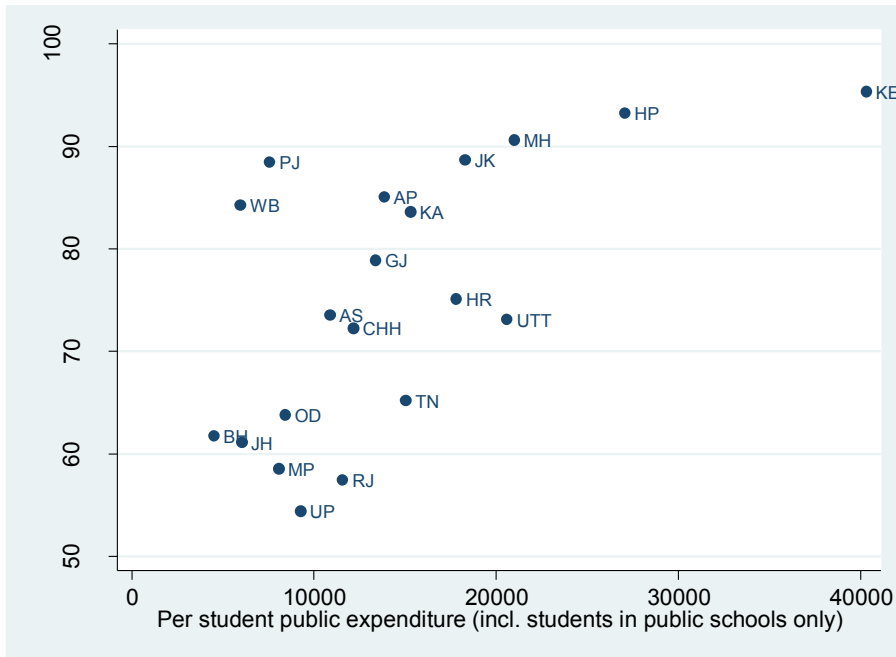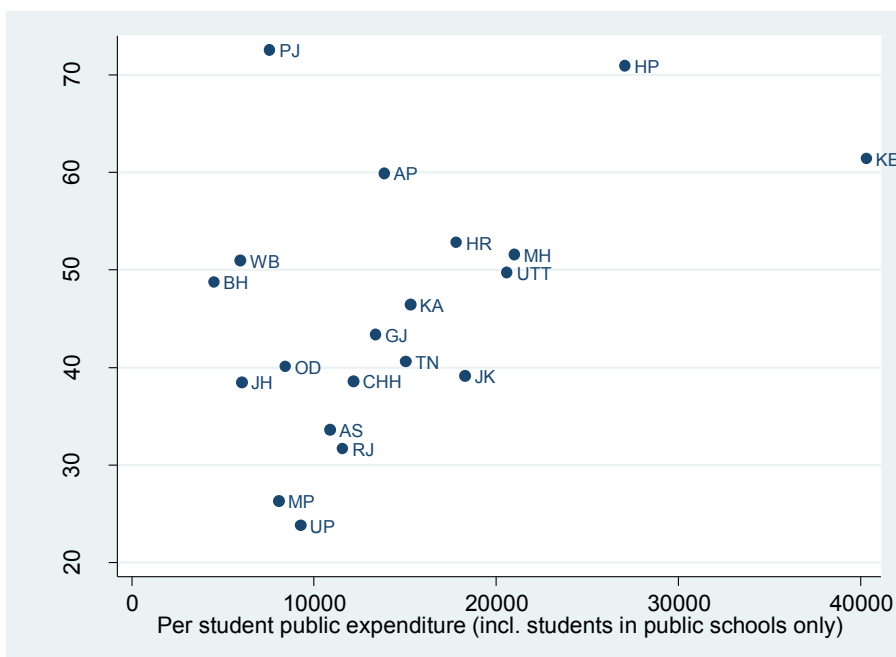

Figure 6: Public expenditure per student enrolled in government schools and Proportion of Children in Grades 3 to 5 who can do subtraction or more

Appendix

Table A.1: Number of students in the NSS 64th round who are at elementary (Grades one to eight) level

	Public schools	Private schools	Public and Private schools
Andhra Pradesh	1528	957	2500
Assam	968	134	1104
Bihar	4004	451	4470
Chhattisgarh	858	148	1011
Gujarat	1283	427	1719
Haryana	393	434	833
Himachal Pradesh	464	172	639
Jammu & Kashmir	399	288	692
Jharkhand	1022	174	1206
Karnataka	959	426	1391
Kerala	238	480	718
Madhya Pradesh	2367	719	3113
Maharashtra	1948	836	2795
Odisha	1568	197	1770
Punjab	430	553	1008
Rajasthan	1447	975	2440
Tamil Nadu	1220	681	1901
Uttaranchal	435	261	698
Uttar Pradesh	4020	2356	6448
West Bengal	2209	311	2527