School Consolidation in Rajasthan

Implementation and Short Term Effects

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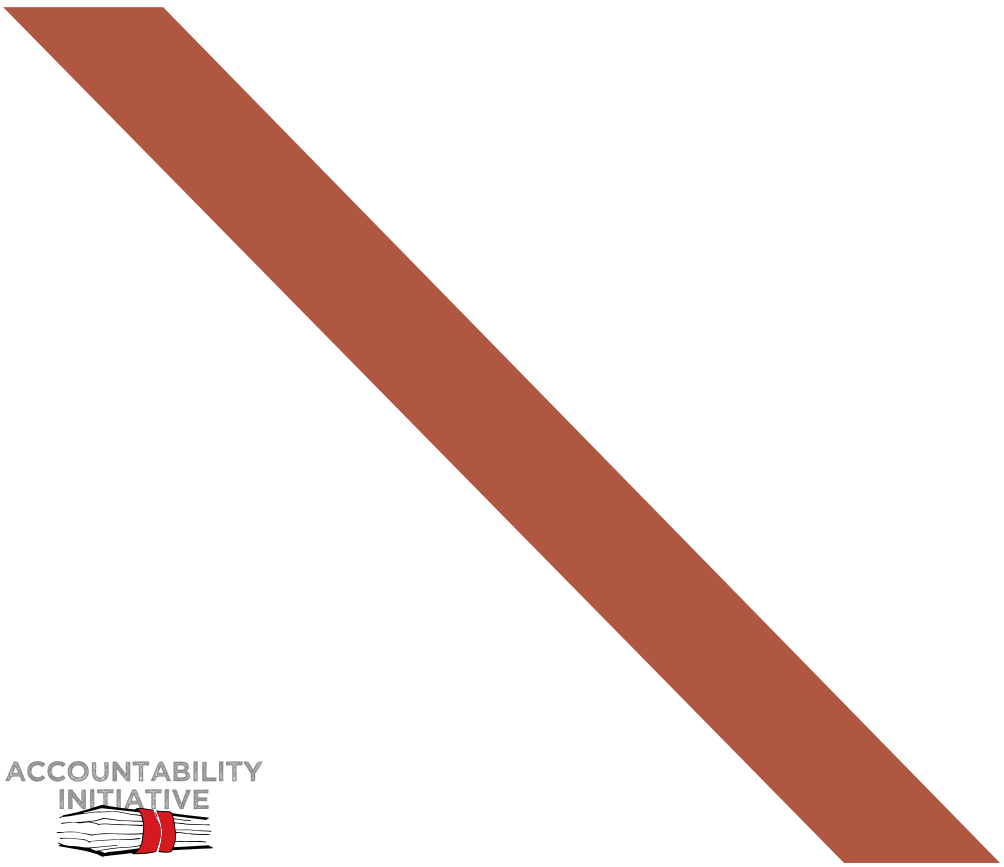

ACCOUNTABILITY INITIATIVE

CENTRE FOR POLICY RESEARCH

School Consolidation in Rajasthan

Implementation and Short Term Effects

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The Accountability Initiative is a research group that works on strengthening transparency and accountability in governance, aiming to increase citizen engagement in policy making and implementation. We do this through evidence-based research on state capabilities and factors affecting public service delivery in India. Our research aims to provide evidence to policy-makers, development practitioners, academics, and the media. We are a part of the Centre for Policy Research, one of India's leading public policy think tanks.

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List of Abbreviations

Block Elementary Education Officer	BEEO
Classroom-Grade Ratio	CGR
Cluster Resource Centre Coordinator	CRCC
Government of Rajasthan	GoR
National Achievement Survey	NAS
Other Backward Caste	OBC
Panchayat Elementary Education Officer	PEEO
Pupil Teacher Ratio	PTR
Right to Education	RTE
Rashtriya Madhyamik Shiksha Abhiyan	RMSA
Sarva Shiksha Abhiyan	SSA
Scheduled Caste	SC
Scheduled Tribe	ST
School Development Grant	SDG
School Management Grant	SMG
Teacher-Grade Ratio	TGR
Unified District Information System for Education	U-DISE

BACKGROUND AND INTRODUCTION

Despite significant investments and achievements in school education across India, enrolment in government schools has been declining and teaching and learning remains a cause for concern. Between 2011-12 and 2015-16, India's elementary level enrolment in government schools fell by 10 per cent from 130 million to 117 million[1]. Consequently, India has witnessed a significant decline in sizes of government elementary schools. For instance, a research study considering 20 major states in India had shown that the number of schools with enrolment less than 20, increased by 52 per cent between 2010-11 and 2015-16 (Kingdon, 2017).

In recent years, policy discussions have raised concerns that supplying more inputs without accounting for efficiency might not be best way of ensuring access for all. In the context of weak state capacity and limited resources, a new policy tool that is increasingly being used in India is combining of two or more schools into one administrative unit, known as school merger or school consolidation. In this process, a number of previously independent schools are being closed and human resources and physical infrastructure are being transferred to one integrated school. The idea is that larger schools will enable provisioning of better infrastructure facilities, allow for more teachers for every grade, ensure greater efficiency, and enable targeted improvements in learning levels.

The draft National Education Policy (NEP) released in May 2019 has identified the issue of isolation of small schools and has proposed a potential solution through the creation of 'school complexes'. The draft NEP envisages that in a 'school complex', multiple public schools can be brought together into one organisational and administrative unit, not always requiring school relocation. Each individual school that is viable in size will continue to function under the broader school complex or can be consolidated with another school. A 'school complex' is expected to enable better resourcing by better sharing of teachers, and libraries, and better equipped laboratories and sports facilities.

Rajasthan was one of the first states in India to consolidate schools at scale. In 2014-15, the Government of Rajasthan (GoR) announced the first set of its schools to be consolidated. Accordingly, around 2,000 elementary schools were integrated with other elementary schools and 14,600 elementary schools were integrated with secondary schools. The process continued in 2016-17, with another 3,000 elementary schools consolidated with other elementary schools and 2,000 elementary schools into secondary schools. According to the Rajasthan Education Directorate, from 2014-15 till 2018-19 approximately 22,000 schools have been consolidated. However, for 2,500 of these, consolidation was reversed, putting the total number of consolidated schools at 19,500 till 2018-19. During the same period, approximately 50 secondary schools were also consolidated with either secondary or senior secondary schools.

The use of school consolidation as a tool for improving governance and efficiency in public schools is not new. Several developed and developing nations have undertaken large scale school consolidation drives. In the United States of America (USA), for instance, the consolidation of schools and school districts was a major pivot of structural and systemic reforms. American reformers were influenced by the argument that larger schools, if managed professionally, could offer better education, a wider range of extra-curricular activities, and access to better infrastructure. From 1930 to 1970, nearly two-thirds of all schools in the USA were consolidated, resulting in an average five-fold increase in school size and increasing professionalisation of education bureaucracies. (Berry and West, 2008). Similarly, in Canada, school consolidation formed an essential component of educational reforms to address issues such as low student enrolment and higher expectations in terms of student and teacher performance (Galway et al. 2013). Again, declining demand for public schools, poor provisioning of facilities, and low quality of learning in rural areas also led to China undertaking a major consolidation drive (Liu et al., 2010).

As India embarks on a similar journey, it is useful to understand the conditions under which consolidation was prescribed, the processes that it entailed, and the initial impact on enrolment, availability of teachers, and

school infrastructure facilities due to school consolidation. This paper attempts to add to the given literature by undertaking a detailed analysis of school consolidation process in Rajasthan. While it is still too early to understand the impact on learning levels, the paper seeks to answer the following questions. First, what are the specific criteria and conditions for closure of schools and their consolidation with other schools and whether they were adhered to by the state administration? Second, whether school consolidation led to improvements in enrolment, availability of teachers, and essential school infrastructure facilities as mandated by the Right of Children to Free and Compulsory Education (RTE) Act, 2010.

The remainder of the paper is structured as follows. **Section 1** describes Rajasthan's school education landscape and the policy rationale and intended processes for consolidating schools. **Section 2** describes the methodology adopted for analysis of the consolidated schools in this paper and the related challenges. **Sections 3** and **4** present the key findings of the study. While **Section 3** looks at the criteria considered by state government for school consolidation and how it was implemented, **Section 4** presents the changes in school characteristics such as enrolment, physical infrastructure facilities, availability of teachers post consolidation. Finally, **Section 5** summarises the key findings and concludes by highlighting potential areas for further research.

SECTION 1: SCHOOL CONSOLIDATION IN RAJASTHAN

In order to understand Rajasthan's decision to consolidate schools, it is imperative to look at the status of elementary education in the years prior to the initiation of school consolidation.

Between 2011-12 and 2014-15, Rajasthan witnessed a significant decline in government school enrolment at the elementary level from 130 million to 119 million, leading to a rise in the number of small schools. Furthermore, government schools in Rajasthan have been plagued with vacancies and a skewed distribution of teachers. At the elementary level, in 2013-14, the number of teachers per grade was less than one (0.65) despite a healthy pupil-teacher ratio (PTR) of 23 students per teacher. At the same time 16 per cent of all government elementary schools in Rajasthan, were single-teacher schools.[2] High teacher vacancy in the state was a regular problem as recognised by Standing Committee Reports for SSA and RMSA[3]. Even though the situation has improved since, at the onset of the academic year 2018-19, around 25 per cent posts sanctioned in elementary schools were still vacant[4].

From an administrative standpoint, small schools spread across the region, especially in areas with low population density meant that every 'Block Elementary Education Officer' (BEEO)[5] had to manage approximately 275 elementary schools across 30-40 Gram Panchayats[6]. As a result, regular monitoring of elementary schools was challenging. Moreover, there were very few secondary schools in Rajasthan with all grades from I to X or I to XII (Approximatly 100 schools in 2013-14). Therefore, students had to change their schools in order to complete all grades, which led to drop-outs at transition points (from grade V to VI, grade VIII to IX, and grade X to XI).

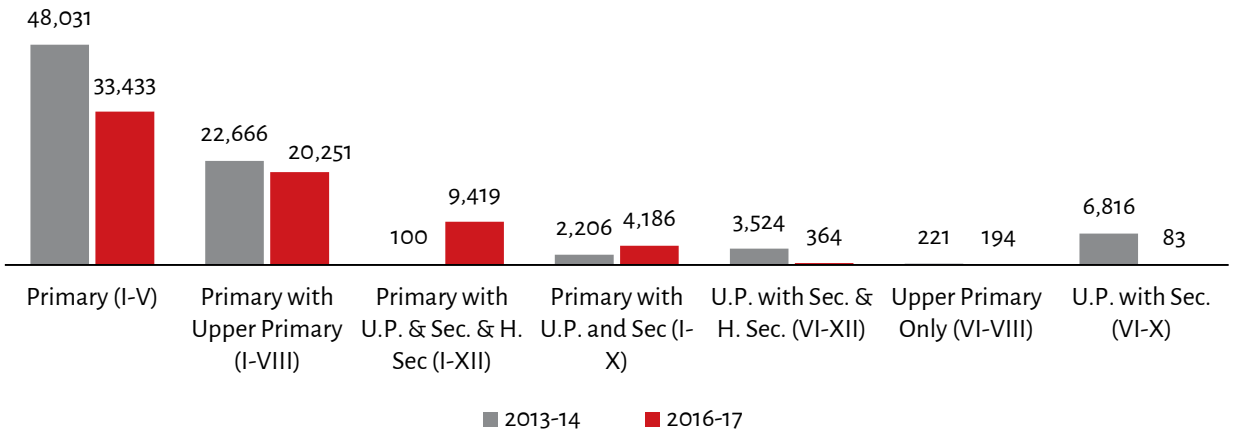
To tackle these issues and to improve the quality of the government schools in the state, the Government of Rajasthan (GoR) launched several interventions targeted towards improving different aspects of school education - monitoring and supervision, pedagogy, teacher recruitment, real time access to school related data, and the optimal utilisation of human and physical resources. Some of the key initiatives include:-

- The '*Adarsh* School' programme, launched in 2015-16, aimed at ensuring that each *Gram Panchayat*[7] has at least one secondary school or senior secondary school with grades I to X or I to XII. These schools are intended to be high-quality, fully equipped, and fully staffed[8].
- The 'State Initiative for Quality Education' (SIQE) scheme launched in 2015-16, to improve learning levels of students in grades I to V in all secondary or senior-secondary schools of the state.
- Consolidation of government schools with an aim to improve efficiency in resource use and improve management under the prevailing administrative structure.

Rajasthan's school education landscape after consolidation

School consolidation is visible in the reduction in the number of government elementary schools in Rajasthan since 2014. Between 2013-14 and 2016-17, the number of government primary schools in Rajasthan declined by 30 per cent. Concurrently, there has been a substantial increase in the number of secondary and senior-secondary schools (grades I to X or I to XII). The number of senior-secondary schools with grades I to XII increased from a negligible 100 in 2013-14 to 9,419 in 2016-17 (***Figure 1***). As per U-DISE, the transition rate in government schools in Rajasthan from grade X to XI improved from 71.5 per cent in 2013-14 to 78.7 per cent in 2015-16. Furthermore, after consolidation, the average number of elementary schools to be managed by a BEEO reduced from 275 to around 165 (in 2017-18), according to interviews conducted with senior state officials.

FIGURE 1: Estimated Number of Government Schools across Categories in Rajasthan: 2013-14 vs. 2016-17

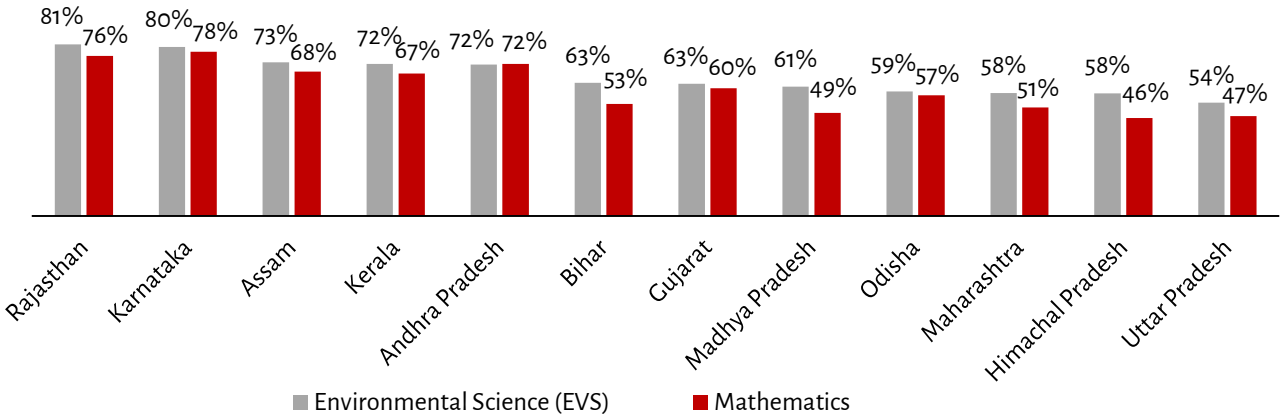


Source: Authors' calculations based on U-DISE raw data for 2013-14 and 2016-17.

The consolidation exercise compliments the government's endeavour to create *Adarsh* schools, thereby augmenting the number of larger schools and enrolment in grades XI and XII. According to the Rajasthan government's portal for secondary education[9], as on March 2019, there were 9,894 *Adarsh* schools in rural Rajasthan created in three phases from 2015-16 to 2017-18. Consequently, between 2014-15 and 2016-17, there was a 29 per cent increase in enrolment in higher secondary grades[10]. Moreover, for administrative efficiency, the state designated the principal of each *Adarsh* school as a 'Panchayat Elementary Education Officer' (PEEO), responsible for managing all elementary schools within their Gram Panchayat. This is further expected to lower the workload of the BEEOs.

Finally, the state has experienced a significant improvement in learning levels in recent years. According to National Achievement Survey (NAS) 2017, Rajasthan performed relatively better than most states (***Figure 2***). Additionally, government schools continue to be preferred over the last three years and Rajasthan happens to be one of the only two states in the country (the other being Bihar) that had not witnessed a decline in government school enrolment between the years 2014-15 and 2016-17 (***Table 1***). Furthermore, the drop-out rate of grade VIII students in government schools has come down from 8.9 per cent in 2014-15 to 5.9 per cent in 2016-17[11].

FIGURE 2: Grade V Students in Government Schools who Correctly Answered More than 50% Questions in Mathematics and EVS (%)



Source: National Achievement Survey (NAS), 2017, State Report Cards.
Note: Includes both Government and Government-aided schools; EVS: Environmental Studies.

TABLE 1: Government School Enrolment in Rajasthan

Academic year	Enrolment at elementary level (grades I to VIII)	Enrolment at secondary level (grades IX to XII)	Total enrolment (grades I to XII)
2014-15	59,40,518	16,74,876	76,15,394
2015-16	62,66,075	18,38,683	81,04,758
2016-17	61,56,649	19,93,633	81,50,282

Source: Authors' calculations based on U-DISE raw data for the corresponding years.

It is in this context that school consolidation as a mechanism of education reform in Rajasthan gains prominence and requires greater study. While the paper is unable to correlate learning levels and these specific reform interventions, it presents the first of its kind effort to understand the processes involved in school consolidation in Rajasthan and its intended and unintended consequences.

SECTION 2: METHODOLOGY AND DATA LIMITATIONS

This paper uses two main data sources for analysis:-

1. School wise statistics available through the Unified District Information System for Education (U-DISE). This is the only publicly available data source that contains detailed information about each school in India.
2. Interviews with state government education department officials and a review of Rajasthan Government orders to understand the rationale and process of school consolidation, and to identify the list of consolidated schools.

Methodology

The paper uses two different approaches for analysis.

In order to understand changes in enrolment, school size, infrastructure and teacher availability, school specific indicators before and after consolidation were analysed. These indicators were further benchmarked with state-wide trends. The study covers two different points in time.

1. **Schools consolidated between August and September 2014:** Data for 2013-14 provided the baseline for pre-consolidation period. This was then compared with data for 2014-15 to understand effects of consolidation.

2. **Schools consolidated between June and September 2016:** Data for 2015-16 was used to understand the pre-consolidation scenario, and that for 2016-17 was used to look at effects of second phase of consolidation.

TABLE 2: Sample Schools Selected for Analysis

Date of order for consolidation	Number of schools closed	Number of consolidated schools	Total Sample	Type of consolidation
	Year of consolidation: 2014-15 (From 12 randomly selected districts)			
14 August 2014	3,760	3,213	6,973	Elementary to Secondary
	Year of consolidation: 2016-17 (From all 33 districts)			
13 June 2016	437	434	871	Elementary to Secondary
14 June 2016	1221	1167	2,388	Elementary to Elementary
21 June 2016	231	231	462	Elementary to Secondary
21 June 2016	147	145	292	Elementary to Elementary
22 June 2016	299	293	592	Elementary to Secondary
Total	2335	2270	4,605	

Source: (1) Schools consolidated in 2016-17: Government of Rajasthan, Education Portal (2) Schools consolidated in 2014-15: Government of Rajasthan, Detailed sources in **Appendix Table 2.**

Note: District wise break-up of the final sample is provided in **Appendix Table 1a, 1b** and **1c.**

Information was obtained from publicly available GoR orders. For schools consolidated in 2014-15, the orders from 12 randomly selected districts were used. For 2016-17, orders for all 33 districts have been used. Schools that could not be located in the relevant year's U-DISE data were dropped from the analysis. Similarly, for any given group of schools that were consolidated (1 or more schools consolidated with another school), the entire group from the sample was dropped, if any of the schools that were to be closed remained open. Therefore, the final sample is smaller than the total number of schools listed in the orders. The specific orders studied and number of schools analysed is given in ***Table 2***.

Data limitations and challenges

- **Difficulties in data collection:** There was no aggregated list of consolidated schools, either online or offline at the time of preparing this report. Furthermore, the orders did not list schools with U-DISE codes. This meant that schools had to be manually searched using school names, village, cluster, block, and district information to create a collated set with U-DISE codes.

- **Reliability of U-DISE data:** One caveat of using U-DISE data is that it is self-reported by the schools, and its accuracy has been called into question. That being said, U-DISE has taken measures to improve data quality over the years, including improved validation checks.

- **School consolidation in 2017-18:** There were a number of orders for school consolidation released in April 2017. This report, however, focuses on the initial years of the consolidation exercise, which covers the majority of the schools consolidated.

- **Data on learning outcomes:** The lack of data on school-specific learning outcomes precludes us from exploring linkages between consolidation and learning. Data on learning outcomes (eg: NAS) is publicly available for states and districts only, and not for each school in the country. Similarly, labour market participation data cannot be linked to students from particular schools. Thus, it is difficult to explore long-term linkages between school consolidation, learning, and employability in the labour market using available data.

- **Data on distance and location:** Given the legal mandate provided by the RTE, it is important to explore whether the consolidated schools are accessible to students, in terms of distance. However, the lack of data on distance to schools in U-DISE precluded any analysis of the same.

- **Perspective of students and parents:** While interviews revealed that schools were selected for closure without consulting or including PEEOs, teachers, SMC members, or guardians, we do not have a sense of the nature and extent of grievances faced by students and parents affected by consolidation.

SECTION 3: GOVERNMENT'S RATIONALE FOR SCHOOL CONSOLIDATION AND IMPLEMENTATION PROCESS

Rationale

According to orders issued by the Rajasthan education department[12], there were two reasons to close schools: (1) Inadequate enrolment in some schools and/or, (2) the existence of more than one primary or upper-primary school within the same revenue village[13]. Government orders for 2014 to 2016 do not define 'low enrolment'. However, some documents released in 2017 specifically mention that schools with enrolment less than 15 or 30 are to be consolidated[14]. Interviews conducted with senior state officials also stated that primary schools were consolidated if enrolment was below 30, and upper primary schools were closed if enrolment was below 50, provided the consolidated school was within a kilometre. The following is a summary of the key guidelines issued with the orders for each district:

- A school once consolidated with another will no longer function as a separate unit. All classes will be operated under the ambit of the consolidated school. In case of space constraints in the combined school, individual buildings will be retained, and classes will be conducted in the old buildings.

- The number of sanctioned posts for teachers will be re-calculated based on the enrolment of the combined schools and in case required, additional teachers will be posted to nearby schools. Proposals for creating new posts and for abolishing all posts in closed schools are to be sent to the state government. Once new posts are created, the process of filling them is to be conducted according to Rajasthan service rules, 1971 (Sub rule 6-D). Until the additional teachers in the consolidated school are transferred, all teachers of the closed schools are to work in the consolidated school. This rationalisation is to be conducted through a consultation process.

- All permanent and non-permanent properties of the closed schools such as land, buildings, furniture, teaching materials, etc. will be under the control of the consolidated school. Post consolidation, any unused physical property (such as a school building), has to be utilised as per directions received from the Directorate of Education.

- In the case of elementary to secondary consolidation, the consolidated school must either be a secondary school or a higher secondary school. In case a primary school is consolidated with a secondary or higher secondary school, additional resources and inputs are to be provided to enable continuous progression of students from grades I to XII.

Implementation Process

There have been three types school consolidation in Rajasthan: (a) Elementary to Elementary, (b) Elementary to Secondary, and (c) Secondary to Secondary. All processes and activities related to school consolidation are managed by two State Education Directorates based in Bikaner. The consolidation of Elementary schools with other Elementary schools is overseen by the 'Directorate of Elementary Education', while that of Secondary schools with other secondary schools is managed by 'Directorate of Secondary Education'. The consolidation of elementary schools with secondary schools is overseen by both Directorates at different stages. Based on the information accessed from the Directorate of Education in Bikaner and interviews with relevant officials, the implementation process of school consolidation can be summarised in the following manner.

- Proposals with a list of schools to be closed and the names of schools with which they are to be consolidated are drafted by the Block Education Office. Some proposals also mention whether the RTE norms in terms of distance of the school would be met or not.

- Proposals are then collated and aggregated at the district level and sent to the Directorate of Education in Bikaner. From there, they are sent to the Rajasthan Education Department headquarters (Secretary's office) in Jaipur[15].

- Once the proposals are inspected and verified in terms of compliance with RTE norms, final orders are released by the State Education Department and sent to the Directorate of Education (Elementary and Secondary).

- Instructions are then sent to the relevant districts, who in turn send similar instructions to block offices and eventually orders are implemented by sending the requisite instructions to schools.

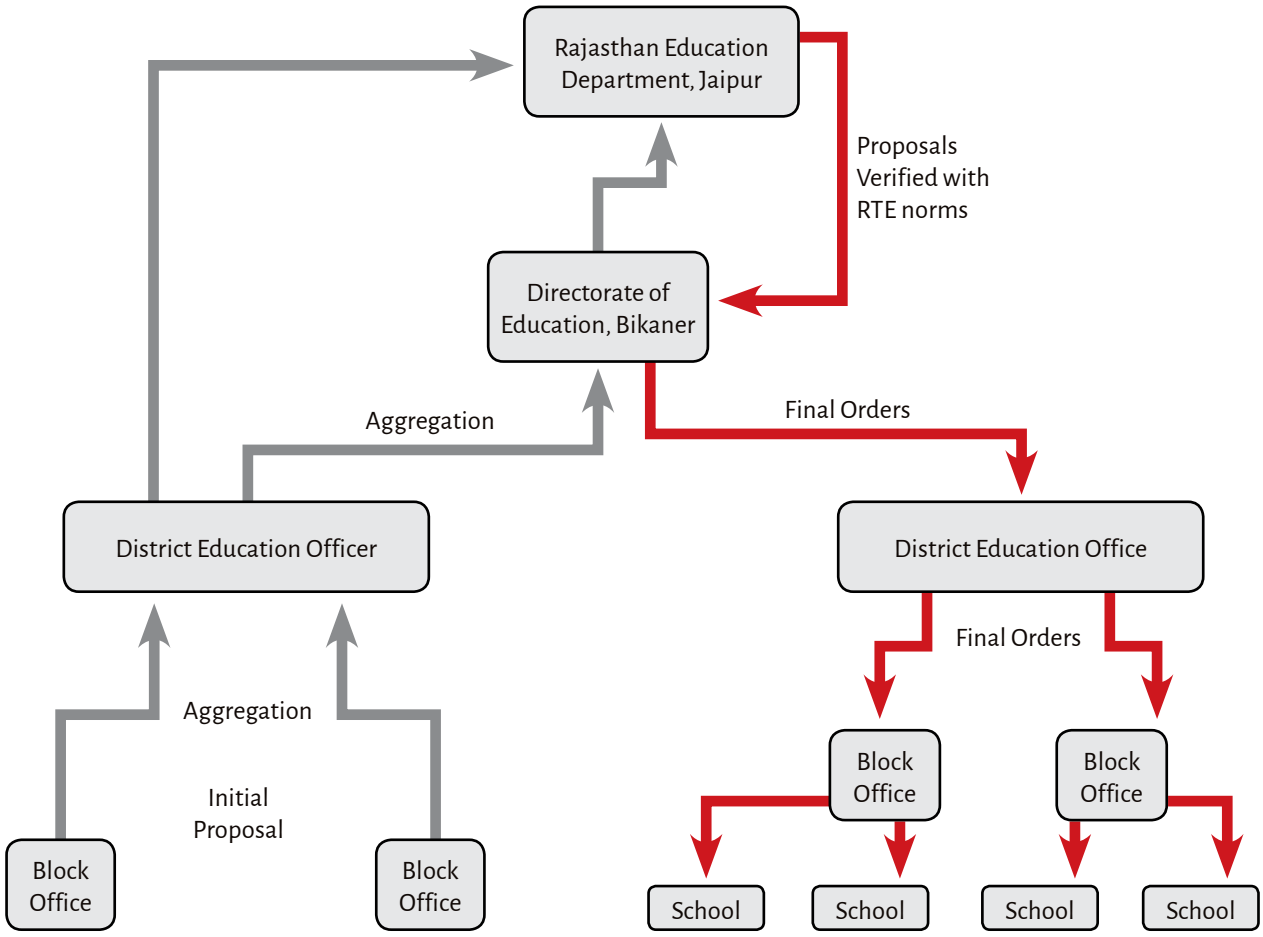
- Neither principals nor teachers of schools chosen for consolidation were involved in the decision-making process. All teachers surveyed as part of the study reported that they received orders directly from block offices but did not face significant challenges in implementation.

The process of implementation can be seen in ***Figure 3***.

According to Rajasthan Education Directorate officials, it took between 1 to 3 months for a school to be consolidated from the date of release of the order. Implementation seems to have been quicker for schools consolidated in 2014-15. A vast majority of schools that were to be consolidated were indeed closed by 30 September 2014 (U-DISE data collection date), despite the order for closure being issued in August 2014.

It is also important to note that the consolidation of several schools was also reversed in many cases. Based on a list of orders (dated 22 October 2014), the reasons for reversing consolidation included large distances, a high proportion of students belonging to Scheduled Castes (SCs) or Scheduled Tribes (STs), adequate enrolment prior to closure, and bad roads.

FIGURE 3: Implementation of school consolidation: Informations flows and verification



Grey arrows mark the flow of proposals, and the red arrows mark the dissemination of orders from the state.

Enrolment in Schools Selected for Consolidation

According to interviews with senior state officials, primary schools were closed if their enrolment was below 30, and upper primary schools were closed if their school-wide enrolment was below 50, provided the consolidated school was within a kilometre.

In order to explore the 'enrolment' criteria used to close schools – we looked at the percentage of closed schools with enrolment less than or equal to 15, 30, and 50. We found that for schools closed in 2014-15, 66 per cent schools had enrolment greater than 50 in 2013-14, while only 7 per cent schools had enrolment less than or equal to 15 (***Table 3A***). By contrast, a greater proportion of schools closed in 2016-17 had, low enrolment before closure. The average enrolment of primary schools closed was 78 in 2013-14, and 22 in 2015-16. It seems that school consolidation in its earlier years focussed more on closing adjacent schools, rather than on schools with low enrolment. However, a lack of data restricted us from exploring the distance criteria. Elementary schools consolidated with elementary, had lower enrolment, compared to those consolidated into secondary (***Table 3B***). It is possible that consolidation with other elementary schools was motivated by low enrolment to a greater extent, than consolidation with secondary schools.

TABLE 3A: Proportion of Schools with Low Enrolment before Closure

	2014-2015			2016-2017		
Enrolment	Primary	Upper primary	Total	Primary	Upper primary	Total
<=15	7%	3%	7%	71%	3%	53%
<=30	19%	7%	18%	80%	4%	59%
<=50	35%	26%	34%	87%	8%	65%
Average Enrolment	78	121	81	22	132	52

Source: Authors' calculations based on U-DISE raw data for the corresponding years.

TABLE 3B: The Proportion of Schools with Low Enrolment by Type of Consolidation

	Elementary to secondary			Elementary to Elementary		
Enrolment	Primary	Upper primary	Total	Primary	Upper primary	Total
<=15	23%	0%	9%	85%	31%	83%
<=30	36%	1%	15%	93%	33%	90%
<=50	55%	5%	25%	96%	41%	94%
Average Enrolment	53	138	104	13	66	16

Source: Authors' calculations based on U-DISE raw data for the corresponding years.

SECTION 4: CHANGES IN SCHOOL CHARACTERISTICS AFTER CONSOLIDATION

This section looks at changes in consolidated schools with respect to three aspects: 1) enrolment, 2) availability of teachers, and 3) school infrastructure.

Changes in Enrolment

There is some evidence that school consolidation can have a negative impact on school enrolment or attendance due to increased distances (Qingyang, 2013, Liu et al., 2010). A survey of rural households in China in 2018 found that closure reduced the number of years of schooling completed by girls above the age of 15. A possible explanation for this differential effect across gender could be the higher sensitivity of girls' enrolment towards distance and that of boys towards quality of schools (Hannum et al, 2018). Other studies however, have found that the likelihood of drop out is low if quality of the consolidated school is better (Hanushek et al, 2008). Any adverse effect initially faced by students displaced by school closure disappears after the initial year of disruption (Engberg et al., 2012, Beuchert et al., 2016). Thus, it is possible that the propensity of dropping out due to school consolidation can be mitigated if students go to better quality schools or perceive the school to be better.

For any two (or more) schools that were consolidated, we compared the combined enrolment in the year preceding consolidation, and enrolment of the consolidated school right after. The findings are as follows (***Table 4***).

Overall Trends

In the first phase of the consolidation, i.e. for schools consolidated in 2014-15, there was a 7 per cent fall in enrolment in consolidated schools in our sample. This decline was higher than the average decline across the state, which was only 1.4 per cent. On the contrary, while the enrolment across government schools in Rajasthan increased between 2015-16 and 2016-17 (second phase of consolidation), enrolment for the consolidated schools still declined by only 3 per cent[16].

Enrolment Changes across Social Group and Disability

The decline in enrolment is more pronounced for certain social groups. Between 2013-14 and 2014-15, SC, ST, and Other Backward Class (OBC) enrolment declined in consolidated schools by 6.8 per cent, 3.5 per cent, and 7.9 per cent, respectively. For the state, the decline was lower at 1.8 per cent for SC and OBC students. However, enrolment of ST students increased by 1 per cent, in contrast to the decline witnessed in schools that were consolidated. Similarly, in 2016-17, while there was an overall increase in SC and ST enrolment and a marginal decline for OBCs in the state; the rate of decline for consolidated schools remained significantly higher at 3.7 per cent, 3.9 per cent and 2.9 per cent, respectively.

Even though the proportion of students with disability in the sample was small (around 1 per cent), this category has been affected most by consolidation. Students with disabilities are more likely to be affected by an increase in distance to reach schools. Across government schools in Rajasthan, the enrolment of students with disability declined by 4 per cent between 2015-16 and 2016-17. In comparison, the rate of decline was much higher among consolidated schools at 22 per cent. Even among the consolidated schools, decline was higher when schools were consolidated with secondary schools. Similar trends hold for schools consolidated in 2014-15.

Enrolment Changes by Gender

There are differences in enrolment trends across gender between all schools in Rajasthan and consolidated schools. Between 2013-14 and 2014-15, while overall girls' enrolment in Rajasthan fell by 2 per cent, the decline in consolidated schools was 6 per cent – a 4 percentage point difference. The fall in boys' enrolment was even more pronounced in consolidated schools at 8 per cent. Even though there was decline in enrolment during the second phase as well, the rates were relatively lower. The enrolment of boys (2.8 per cent) declined at a slower pace than that of girls (3.7 per cent) during the second phase.

TABLE 4: Changes in Enrolment

Categories of students	2013-14 to 2014-15	2015-16 to 2016-17		
	Elementary to secondary consolidation	Elementary to secondary consolidation	Elementary to elementary consolidation	All schools
All students	**-7.22%**	**-1.35%**	**-8.89%**	**-3.23%**
SC students	-6.78%	-3.33%	-5.01%	-3.71%
ST students	-3.46%	-1.46%	-9.47%	-3.91%
OBC students	-7.98%	-0.43%	-10.08%	-2.89%
All Disabled	**-21.98%**	**-34.56%**	**-7.80%**	**-22.36%**
All Girls	**-6.10%**	**-1.94%**	**-8.62%**	**-3.65%**
All Boys	**-8.32%**	**-9.20%**	**-0.73%**	**-2.79%**

Source: Authors' calculations based on U-DISE raw data for the corresponding years.

There are two additional points to note here. Firstly, the rate of decline in enrolment across all categories is higher for schools consolidated in 2014-15, compared to schools consolidated in 2016-17, with the exception of students with disability. The higher rate of decline in 2014-15 could be driven by the fact that a much larger set of schools were consolidated, compared to 2016-17. Moreover, since 2014-15 was the first phase, it is also possible that state education authorities were still learning how to choose schools for closure, and implementation might have had teething issues.

Secondly, there are differences in the enrolment trends based on the nature of school consolidation. During 2016-17, enrolment declined much more during elementary to elementary consolidation for all categories, except for students with disability. One explanation for this difference could be that secondary schools are usually at a greater distance[17] compared to primary schools. Therefore, students with disabilities are likely to have been affected more than other students. Secondary schools also typically have more qualified teachers, better facilities, and greater monitoring, and may thus be perceived as offering higher quality by parents. This may have ensured that enrolment declined more when elementary schools were consolidated with elementary schools.

In the case of elementary to secondary consolidation in 2014-15 and 2016-17, the percentage of schools where enrolment fell drastically (20 per cent or 30 per cent) was lower compared to the situation when be consider all government schools in the state (***Table 5***). This is in sharp contrast to consolidation between elementary schools, where the propensity for sharp declines in enrolment was higher than all government schools.

TABLE 5: **The Percentage of Schools by Degrees of Decline in Enrolment**

Types of school	Percentage of schools wherer enrolment dropped by			
	30% or more	20% or more	10% or more	More than 0%
2014-15				
Elementary to secondary consolidation	5%	15%	40%	73%
All government schools in Rajasthan	8%	16%	32%	54%
2016-17				
All consolidated schools	12%	12%	39%	63%
Elementary to secondary consolidation	5%	5%	24%	48%
Elementary to elementary consolidation	17%	17%	51%	73%
All Government schools in Rajasthan	7%	13%	27%	50%

Source: Authors' calculations based on U-DISE raw data for the corresponding years.

Teacher Availability

A useful proxy for school quality is the availability of teachers with respect to class size. Past work on the effect of class size on learning levels has found a strong negative association between larger classes and students' learning levels (see for instance, Angrist and Lavy, 1990 on the effect of class size on reading and mathematics scores of elementary school children in Israel, and Krueger, 1999 on a randomised class size experiment conducted in the United States).

The inadequacy of teachers had been a major concern in Rajasthan. According to the RTE Act, all primary schools and upper primary schools must have a PTR of 30 and 35, respectively. PTR, however, considers the number of teachers and students in a school, without accounting for the availability of teachers for every grade. Thus, a primary school with 2 teachers and 60 students would meet the PTR norm as per RTE. But it could still mean that two teachers are

responsible for managing five grades. The situation in Rajasthan was somewhat similar for a majority of elementary schools. The proportion of schools with less than 2 teachers in Rajasthan has been considerably high, and this proportion has not changed much between 2013-14 and 2016-17 (16 per cent to 19 per cent). Despite a healthy PTR, inadequate teachers per grade meant that multi-grade teaching remains a serious problem, and that students receive limited attention and time from teachers.

Rationalisation of Teachers

An important consequence of the school consolidation exercise has been the increase in the total number of teachers in a school. As can be seen in ***Table 6***, during the first phase of the consolidation period, while the avarage number of teachers per school was 3 in closed schools, it was three times higher in the consolidated schools at over 10. Similarly, in the second phase, the number of teachers stood at under 3 for schools selected for closure, which increased to over 8 for the consolidated schools. Again, for elementary schools that were consolidated with other secondary schools, the increase was even higher from 4.7 to 13.4.

Importantly, while the number of students per school also increased, PTR remained within RTE norms. The increase in the average number of students per school was higher in 2016-17, resulting in an increase in PTR from 18 to 27 in 2016-17. In 2014-15, PTR remained the similar even in consolidated schools at 26.

TABLE 6: **Teachers per School and Pupil-Teacher Ratios**

Type of school	Year	Students per School	Teachers per School	Pupil Teacher Ratio
Sample consolidated Schools 2014-15	Closed schools: 2013-14	131	3.04	27
	Consolidated schools			
	2014-15	265	10.36	26
	2015-16	286	10.99	26
	2016-17	303	11.96	25
Sample consolidated Schools 2016-17	Closed schools: 2015-16	52	2.92	18
	Consolidated schools in 2016-17	219	8.02	27
Elementary to secondary consolidation	Closed schools: 2015-16	104	4.69	22
	Consolidated schools in 2016-17	398	13.39	30
Elementary to elementary consolidation	Closed schools: 2015-16	16	1.67	9
	Consolidated schools in 2016-17	89	4.1	22

Source: Authors' calculations based on U-DISE raw data for the corresponding years.

A closer look reveals that in 2013, 11 per cent of the elementary schools closed had less than 2 teachers. Post consolidation, there was no school with less than 2 teachers (***Table 6***). Similarly, in 2016-17, the percentage of closed schools with less than two teachers stood at 33 per cent. This declined to 5 per cent after consolidation. Importantly, the difference is higher for elementary schools consolidated with other elementary schools – a decline from 50 per cent among schools closed to 8 per cent among consolidated schools suggesting that teachers may have been reallocated.

TABLE 7: Inadequate Teachers and PTR Norms

Type of school	Year	Schools with < 2 teachers	Schools that met PTR norms
All Government schools in Rajasthan	2013-14	16%	72%
	2014-15	19%	71%
	2015-16	17%	71%
	2016-17	18%	71%
Sample consolidated schools 2014-15	Closed schools: 2013-14	11%	64%
	Consolidated schools		
	2014-15	0%	65%
	2015-16	0%	64%
	2016-17	0%	71%
Sample consolidated schools 2016-17	Closed schools: 2015-16	33%	86%
	Consolidated schools in 2016-17	5%	70%
Elementary to secondary consolidation	Closed schools: 2015-16	10%	76%
	Consolidated schools in 2016-17	0%	55%
Elementary to elementary consolidation	Closed schools: 2015-16	50%	73%
	Consolidated schools in 2016-17	8%	80%

Source: Authors' calculations based on U-DISE raw data for the corresponding years.

Addressing Multi-Grade Teaching

There are two aspects that generally lead to multi-grade teaching, i.e. when a teacher has to teach multiple grades at the same time:

1. A lack of teaching resources, measured by a Teacher-Grade Ratio (TGR) of less than one, implying that not every grade in a school has a designated teacher.

2. A lack of physical resources, measured by a Classroom-Grade Ratio (CGR) of less than one, implying that not every grade in a school has a designated classroom.

Teacher-Grade Ratio (TGR)

Ideally, every grade in a school should have at least one teacher. Therefore, the minimum acceptable TGR is 1 – implying that a school from grade 1-5 should have atleast 5 teachers[18]. The increase in the number of teachers due to school consolidation, while maintaining PTR norms, led to some increase in TGR.

The average TGR prior to consolidation was low across our different samples. After consolidation, TGR improved in consolidated schools (*Table 8*). The improvement in TGR was more visible for elementary schools that were consolidated with secondary schools – in both 2014-15 and 2016-17. For schools consolidated in 2014-15, the average TGR for closed schools stood at 0.58 teachers per grade before consolidation (in the year 2013-14), which was slightly below the state-wide average for 2013-14 (0.65). Post consolidation, TGR in the consolidated schools improved to 0.96 in 2014-15, and stood at 1.04 in 2016-17. Similarly, during the second phase of consolidation in 2016-17,

TGR improved from 0.5 in 2015-16 in closed schools to 0.92 in 2016-17 in consolidated schools. For elementary to secondary school consolidation, the TGR improved from 0.69 in 2015-16 to 1.17 in 2016-17, which was far higher than the state average of 0.68 in 2016-17. Even as the TGR for elementary schools consolidated with elementary schools doubled, it remained less than 1.

TABLE 8: Teacher-Grade Ratios (TGR) and Classroom-Grade Ratios (CGR)

Type of school	Year	Teacher-Grade Ratio	Classroom-Grade Ratio	Schools with TGR >=1	Schools with CGR >=1
All government schools in Rajasthan	2013-14	0.65	0.59	16%	11%
	2014-15	0.66	0.65	14%	14%
	2015-16	0.67	0.59	14%	11%
	2016-17	0.68	0.60	16%	11%
Sample consolidated schools 2014-15	Closed schools: 2013-14	0.58	0.64	12%	22%
	Consolidated schools				
	2014-15	0.96	46%	4%	27%
	2015-16	0.96	0.52	47%	6%
	2016-17	1.04	0.52	62%	4%
Sample consolidated schools 2016-17	Closed schools: 2015-16	0.50	0.62	7%	15%
	Consolidated schools in 2016-17	0.92	0.56	32%	15%
Elementary to secondary consolidation	Closed schools: 2015-16	0.69	0.76	16%	29%
	Consolidated schools in 2016-17	1.17	0.44	64%	4%
Elementary to elementary consolidation	Closed schools: 2015-16	0.33	0.48	0%	4%
	Consolidated schools in 2016-17	0.61	0.71	9%	22%

Source: Authors' calculations based on U-DISE raw data for the corresponding years.

Classroom-Grade Ratio (CGR)

By looking at the CGR of a school, we can estimate whether a school has enough classrooms for each grade. A CGR of less than 1 indicates that the number of grades in a school exceed the number of classrooms available. This compounds the problem of multi-grade teaching.

The average CGR improved moderately for schools consolidated in 2014-15. The proportion of closed schools with CGR greater than or equal to one stood at 22 per cent. After consolidation, this figure rose to 27 per cent. In 2016-17, the percentage of schools with CGR greater than or equal to one stayed similar before and after consolidation. However, there was a substantial decline in CGR for schools consolidated with secondary schools, and the reverse was true for schools consolidated with elementary schools. The former can be explained by the fact that students and teachers were transferred to schools with an inadequate number of classrooms. Clearly, a vast majority of schools have at least one grade that does not have a dedicated classroom space to itself—both in our sample schools and the state in its entirety (*Table 8*).

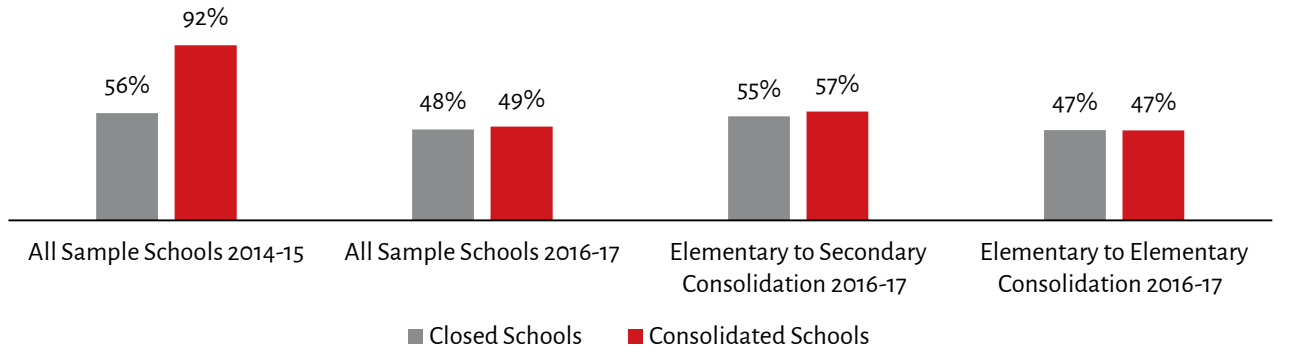
Availability of Head Teachers

As per the RTE Act, a school with an enrolment of 150 must have a head teacher. Despite the increase in enrolment in consolidated schools, a substantial proportion of schools with enrolment greater than or equal to 150 still did not have a head teacher. For schools consolidated in 2014-15, the proportion of schools with enrolment greater than or equal to 150 but without head teachers, increased from 56 per cent to 92 per cent after consolidation in 2014-15 (***Figure 4***).

We observed that the proportion of schools with no head teacher remained similar after consolidation in 2016-17. Thus, 49 per cent of consolidated schools still lacked head teachers as compared to 48 per cent before consolidation. For Rajasthan, the proportion of schools without head teachers rose from 65 per cent in 2013-14 to 73 per cent in 2014-15. This proportion fell to 61 per cent in 2015-16 and further to 53 per cent in 2016-17, which highlights the magnitude of the problem.

Semi-structured interviews with 6 teachers from schools that were closed and were subsequently transferred to consolidated schools in 2016-17 provided some insight on the changes in administrative responsibilities in consolidated schools. More teachers and the introduction of PEEOs meant that many non-teaching responsibilities such as administrative tasks and record-keeping etc. are now handled by the PEEO or the principal's office. These teachers also reported that they have been able to devote more time to teaching. This reduction in workload, however, was lower in elementary to elementary consolidation due to fewer staff and the lack of head-teachers in many cases. Interviews with PEEOs confirmed this as they also stated that their workload—administrative, financial, and management related—has increased. They have multiple schools under their jurisdiction, and have to monitor and manage all of them, in addition to handling paperwork for these schools.

FIGURE 4: **Proportion of Consolidated Schools Without Head Teachers**



Source: Authors' calculations based on U-DISE raw data for the corresponding years.

Overall, consolidation of schools has contributed to some improvement in the availability of teachers. Multi-grade teaching may have been addressed to some extent, but serious challenges remain, particularly in elementary schools. From our sample, more than half the elementary schools consolidated still lack head teachers and the TGR remains far from ideal. The inadequacy of classrooms in secondary schools is another challenge that must be addressed, even as the TGR has improved.

School Infrastructure Facilities

In India, the RTE Act defines certain minimum quality standards or benchmarks for school inputs. These include provisions such as the availability of drinking water and electricity, playgrounds, boundary wall, a library, and separate toilets for boys and girls, etc. Consolidation was expected to improve access to some of these facilities for students, especially when smaller schools with relatively poor infrastructure were consolidated into better equipped schools. Schools that are smaller and situated in more remote areas are less likely to have all amenities that larger schools do. This could potentially have an impact on students' attendance, performance, and parents' decisions regarding school choice.

A look at the available data on school facilities found some improvement in the proportion of schools with boundary wall, electricity, library and playground after consolidation (***Table 9A***). Additionally, schools were more approachable by road, especially for schools consolidated in 2016-17. While the number of schools with a playground and a computer aided learning lab (CAL) remains low, consolidated schools still had a higher proportion of these facilities, compared to closed schools.

TABLE 9A: **Proportion of Schools with Infrastructure Facilities: Pre and Post Consolidation**

School infrastructure facilities	Consolidation in 2014-15		Consolidation in 2016-17	
	Schools closed 2013-14	Consolidated schools 2014-15	Schools closed 2015-16	Consolidated schools 2016-17
Boundary Wall	85%	93%	72%	89%
Electricity	42%	87%	31%	66%
A Playground	28%	55%	34%	52%
A Library	48%	91%	61%	87%
Drinking Water*	66%	98%	53%	51%
Boy's Toilet	94%	95%	97%	99%
Separate Girl's Toilet	97%	99%	100%	100%
Computer Aided Learning Lab	6%	15%	11%	14%
SCR < 30	64%	51%	88%	53%
SGCR < 30	50%	40%	69%	37%
Approachable by road	97%	100%	68%	83%
Kitchen Shed	80%	92%	72%	73%

Source: Authors' calculations based on U-DISE raw data for the corresponding years.
Note: *Sources of drinking water include hand-pumps, taps, and wells.

As with other indicators, there are differences in the availability of school facilities when elementary schools are consolidated with other elementary schools as opposed to when they are consolidated with secondary schools (***Table 9B***). Considering elementary to secondary consolidation in 2016-17, 26 per cent elementary schools had a computer aided learning lab (CAL) prior to consolidation, compared to only 8 per cent of secondary schools. As a result, only 13 per cent schools had a CAL after consolidation. In contrast, only 1 per cent of all closed schools consolidated with

elementary schools had a CAL before consolidation, which improved to 14 per cent after consolidation. Similarly, the proportion of schools with a kitchen shed declined when elementary schools were consolidated with secondary schools, but the opposite was true for consolidation with an elementary school. Facilities like a boundary wall and playground improved in both types of consolidation. However, access to a playground improved much more for those schools consolidated into secondary schools, compared to those consolidated with elementary schools. The converse is true for access to boundary walls.

While basic infrastructure improved in consolidated schools, the number of students per classroom (or SCR) also increased post consolidation. The U-DISE dataset lists the number of classrooms in every school, along with the number of 'good'[19] classrooms. The proportion of schools with less than 30 students per classroom (SCR) and less than 30 students per 'good classroom' (SGCR) declined after consolidation.

TABLE 9B: **Proportion of Schools with Infrastructure Facilities, by Nature of Consolidation, 2016-17**

School infrastructure facilities	Elementary to Secondary Consolidation		Elementary to Elementary Consolidation	
	Schools closed 2015-16	Consolidated schools 2016-17	Schools closed 2015-16	Consolidated schools 2016-17
Boundary Wall	87%	96%	60%	84%
Electricity	60%	97%	9%	44%
Playground	37%	65%	32%	43%
Library	84%	97%	45%	80%
Drinking Water*	55%	51%	52%	51%
Boy's Toilet	95%	98%	98%	100%
Girl's Toilet	100%	100%	100%	100%
Computer Aided Learning Lab	26%	13%	1%	14%
SCR < 30	80%	7%	93%	86%
SGCR < 30	60%	5%	75%	61%
Approachable by road	84%	94%	57%	75%
Kitchen Shed	73%	64%	71%	80%
Building	98%	99%	95%	99%

Source: Authors' calculations based on U-DISE raw data for the corresponding years.
Note: *Sources of drinking water include hand-pumps, taps, and wells.

SECTION 5: CONCLUSIONS AND A WAY FORWARD

This is one of the first studies on school consolidation in India. It has focused on the implementation and short term measurable effects of this policy initiative for Rajasthan. In this concluding section, we summarise some of key findings.

Criteria for School Consolidation

The schools selected for closure, did not always follow the 'low enrolment' norm, which is somewhat in line with the government orders, which mentioned that there were two primary factors considered for consolidation of schools- low enrolment and proximity of schools in accordance with RTE norms. Differences have also been observed across the two years of consolidation-2014-15 and 2016-17. Average school enrolment was considerably larger for schools consolidated in 2014-15, as compared to those in 2016-17. It is possible that consolidation of elementary schools with other elementary schools was motivated by low enrolment to a greater extent, than consolidation with secondary schools. There seems to be other policy-level factors that might have played a role in selection of schools for consolidation, especially because there were other parallel policy interventions being implemented by GoR during the same period.

Change in enrolment post consolidation

There was greater decline in enrolment in consolidated schools compared to all government schools across the state. Worryingly, the decline in enrolment seems to be the highest for students with disability, followed by that of SC and ST students. It should be noted that rate of decline in enrolment across all categories was higher for schools consolidated in 2014-15, as compared those consolidated in 2016-17, with the exception of students with disability.

Availability of Teachers and Classrooms

After consolidation, there has been an increase in the average number of teachers per school. None of the consolidated schools across both years had less than two teachers. The number of teachers per grade (TGR) has improved moderately, which may have a positive impact on teaching. The improvement in TGR was visible more for those elementary schools that were consolidated with secondary schools – in both 2014-15 and 2016-17. However, the lack of head-teachers remains a major concern. Furthermore, the state suffers from a lack of classrooms for every grade, as indicated by CGR, and consolidation has had an adverse effect.

School Infrastructure Facilities

Overall, it was observed that students who were transferred to other better-equipped schools after consolidation benefitted from improved inputs such as boundary wall, electricity connection, library, and playground. While this does not necessarily lead to an improvement in quality of learning, it certainly indicates that the stage has been set for a real push to improve learning in classrooms. For some facilities such as electricity and boundary walls, the improvement was more in elementary to elementary consolidation. For others such as a playground, the improvement was higher when elementary schools were consolidated with secondary schools.

As a policy, school consolidation has the potential to radically alter structures in the public education system, clearly visible from countries where this policy has been implemented on a large scale. It is this transformative potential that can be tapped to provide a push for quality public education in the country. However, there are concerns in terms of access – particularly with a decline in enrolment especially among socially and economically disadvantaged students and students with disabilities. Moreover, while it is clear that elementary schools consolidated with secondary schools improved more, the fact that the number of secondary schools is low, raises questions on the efficacy of school consolidation. In 2016-17, 44 per cent students enrolled in government schools in Rajasthan were not part of any secondary or senior-secondary schools.

It is important to reiterate here that the current findings can be substantiated with further research. Past research has shown that the focus of consolidation have mostly excluded the social and cultural context embedded within schools and in the communities where these schools were situated (Barter, 2014). This single-minded focus put the teachers' work and students' learning at risk. Similarly, research has shown that small schools have strengths not evident in large schools (Nachtigal, 1982). The higher degree to which teachers could attend to each student is one such strength. While this study could not cover some of these aspects, future studies looking at all factors including viewpoints of stakeholders such as teachers, parents and students, as well as the impact on learning could uncover longer terms effects of consolidation.

END NOTES

1. U-DISE Elementary State Report Cards, 2011-12, 2015-16 and 2016-17. Available online at: http://udise.in/src.htm.
2. Authors' estimates based on U-DISE raw data for 2013-14.
3. http://164.100.47.5/newcommittee/reports/EnglishCommittees/Committee%20on%20HRD/305.pdf.
4. Statistics provided by Rajasthan SSA office.
5. The officer in charge of elementary education in a block is called the Block Elementary Education Officer.
6. As per statistics provided by the state education department.
7. A Gram Panchayat is a local, formalised self-governance system at the village level in India under the Panchayati Raj system. Its members are elected, and a Gram Panchayat usually includes more than one village. Rajasthan has 9893 gram panchayats, at present.
8. Guideline for Adarsh Schools is available online at: http://rajrmsa.nic.in/AadarshSchool/PDF/Adarsh%20School%20Guildlines.pdf.
9. Shaala Darpan portal, http://rajrmsa.nic.in/ShaalaDarpan/Home/Public/SchoolSummary.aspx.
10. Authors' estimates based on U-DISE raw data for the respective years.
11. U-DISE State Report Cards for elementary education for 2014-15 and 2016-17.
12. Orders dated 14 June 2016: http://education.rajasthan.gov.in/content/raj/education/elementary-education/hi/archive/order/eletoele.html
13. A Revenue Village is a small administrative region in India, a village with defined borders. One revenue village may contain many hamlets
14. A school closed order released in 2017: http://education.rajasthan.gov.in/content/dam/doitassets/education/school%26secondaryeducation/Secondary%20Education/akikaran/akikaranorder2017/F220217_ganganagar.pdf
15. Sometimes, proposals are sent directly from district offices to the state education department headquarters. This was observed more in 2014-15.
16. These trends were further confirmed by semi-structured interviews with 4 teachers. According to these teachers, some students have indeed left government schools and joined private schools after integration.
17. As per the RTE Act, primary schools within 1 km, upper primary schools within 3 km (RTE), and secondary schools within 5 km walking distance from children.
18. We do not have data available on which grades have designated teachers, or not. However, we have assumed here that if a school with 5 grades has 5 teachers, then every grade has at least 1 teacher.
19. As per U-DISE, 'good' classrooms refer to those which do not require any repair work. However, they might need painting, white-washing, replacement of nuts and bolts.

References

Aiyar, Y., Dongre, A., Kapur, A., Mukherjee, A.N., & Raghunandan, T.R. (2014). Rules vs. Responsiveness: Towards Building an Outcome-Focused Approach to Governing Elementary Education Finances in India. *PAISA, Accountability Initiative, Centre for Policy Research*.

Angrist, J. D., & Lavy, V. (1990). Using Maimonides' Rule to Estimate the Effect of Class Size on Scholastic Achievement. *The Quarterly Journal of Economics, Volume 114, Issue 2, 533–575*.

Barter, B.G. (2014). Education Reform: The Effects of School Consolidation on Teachers and Teaching. *Alberta Journal of Educational Research, Vol. 60, No. 4, Winter 2014*, 674-690.

Berry, C. R., & West, M. R. (2008). Growing pains: The school consolidation movement and student outcomes. *The Journal of Law, Economics, and Organization, Volume 26, Issue 1*, 1-29. doi: 10.1093/jleo/ewn015

Beuchert, L. V., Humlum, M. K., Nielsen, H. S., & Smith, N. 2016. The Short-Term Effects of School Consolidation on Student Achievement: Evidence of Disruption?. *IZA Discussion Paper 10195, Institute for the Study of Labor, Bonn, Germany*.

Engberg, J., Gill, B., Zamarro, G., & Zimmer, R. (2012). Closing schools in a shrinking district: Do student outcomes depend on which schools are closed?. *Journal of Urban Economics*.

Galway, G., Sheppard, B., Wiens, J., & Brown, J.(2013). The impact of centralization on local school district governance in Canada. *Canadian Journal of Educational Administration and Policy*, 145, 1-34.

Hannum, E., Liu, X., & Wang, F. (2018). Estimating the Effects of Educational System Contraction: The Case of China's Rural School Closure Initiative. SSRN. doi: 10.2139/ssrn.3140132

Hanushek, E. A., Lavy, V., & Hitomi, K. (2008). Do Students Care about School Quality? Determinants of Dropout Behavior in Developing Countries. *Journal of Human Capital*.

Kingdon, G.G. (2017). The Private Schooling Phenomenon in India: A Review. *IZA* Discussion Paper No. 10612. Retrieved from https://ssrn.com/abstract=2940602

Krueger, A. B. (1999). Experimental Estimates of Education Production Functions. *The Quarterly Journal of Economics, Oxford University Press, vol. 114(2)*, 497-532.

Liu, C., Zhang, L., Luo, R., Rozelle, S., and Loyalka, P. (2010). The effect of primary school mergers on academic performance of students in rural China. *International Journal of Educational Development*.

Nachtigal, P. M. (Ed.). (1982). Rural Education: In Search of a Better Way. *Westview Press*

Qingyang, G. (2013). The Reasons and Solutions for Problems in Rural School Consolidation. *Chinese Education and Society, vol. 46, no. 5*.

APPENDIX

Appendix Table 1a: Sample Schools per District, 2016-17

	Total Sample		
District	Total	Schools closed	Consolidated Schools
Ajmer	72	37	35
Alwar	228	115	113
Banswara	140	70	70
Baran	78	40	38
Barmer	422	215	207
Bharatpur	109	55	54
Bhilwara	163	85	78
Bikaner	121	62	59
Bundi	162	82	80
Chittaurgarh	82	41	41
Churu	109	55	54
Dausa	108	55	53
Dholpur	34	17	17
Dungarpur	145	73	72
Hanumangarh	96	48	48
Jaipur	398	201	197
Jaisalmer	122	63	59
Jalore	139	70	69
Jhalawar	63	32	31
Jhunjhunu	136	68	68
Jodhpur	258	130	128
Karauli	86	44	42
Kota	122	61	61
Nagaur	218	112	106
Pali	147	75	72
Pratapgarh	33	17	16
Rajsamand	83	44	39
Sawai Madhopur	65	33	32
Sikar	179	90	89
Sirohi	12	6	6
Sriganganagar	162	82	80
Tonk	102	51	51
Udaipur	211	106	105
Total	**4605**	**2335**	**2,270**

Appendix Table 1b: Sample Schools by District – Elementary to Secondary Consolidation, 2016-17

	Elementary to Secondary Schools		
District	Total	Schools closed	Consolidated Schools
Ajmer	25	13	12
Alwar	122	61	61
Banswara	38	19	19
Baran	36	18	18
Barmer	94	47	47
Bharatpur	59	30	29
Bhilwara	42	21	21
Bikaner	38	19	19
Bundi	81	41	40
Chittaurgarh	30	15	15
Churu	90	45	45
Dausa	20	10	10
Dholpur	10	5	5
Dungarpur	92	46	46
Hanumangarh	68	34	34
Jaipur	197	99	98
Jaisalmer	52	26	26
Jalore	65	33	32
Jhalawar	23	12	11
Jhunjhunu	82	41	41
Jodhpur	88	44	44
Karauli	32	16	16
Kota	58	29	29
Nagaur	70	35	35
Pali	54	27	27
Pratapgarh	8	4	4
Rajsamand	49	26	23
Sawai Madhopur	10	5	5
Sikar	82	41	41
Sirohi	8	4	4
Sriganganagar	62	31	31
Tonk	48	24	24
Udaipur	92	46	46
Total	**1925**	**967**	**958**

Appendix Table 1c: Sample Schools by District – Elementary to Elementary Consolidation, 2016-17

	Elementary to Elementary Schools		
District	Total	Schools closed	Consolidated Schools
Ajmer	47	24	23
Alwar	106	54	52
Banswara	102	51	51
Baran	42	22	20
Barmer	328	168	160
Bharatpur	50	25	25
Bhilwara	121	64	57
Bikaner	83	43	40
Bundi	81	41	40
Chittaurgarh	52	26	26
Churu	19	10	9
Dausa	88	45	43
Dholpur	24	12	12
Dungarpur	53	27	26
Hanumangarh	28	14	14
Jaipur	201	102	99
Jaisalmer	70	37	33
Jalore	74	37	37
Jhalawar	40	20	20
Jhunjhunu	54	27	27
Jodhpur	170	86	84
Karauli	54	28	26
Kota	64	32	32
Nagaur	148	77	71
Pali	93	48	45
Pratapgarh	25	13	12
Rajsamand	34	18	16
Sawai Madhopur	55	28	27
Sikar	97	49	48
Sirohi	4	2	2
Sriganganagar	100	51	49
Tonk	54	27	27
Udaipur	119	60	59
Total	**2680**	**1368**	**1312**

Appendix Table 2: Online links for the list of consolidated schools

14 August 2014: Elementary to Secondary	http://education.rajasthan.gov.in/content/raj/education/en/school-sec-education/secondary-education/order/Secondary/Sec_Ekikaran.html
13 June 2016: Elementary to Secondary	http://education.rajasthan.gov.in/content/raj/education/en/school-sec-education/elementaryeducation/archive/order/eletosec.html
13 June 2016: Elementary to Elementary	http://education.rajasthan.gov.in/content/raj/education/en/school-sec-education/elementaryeducation/archive/order/eletosecgirlsmerge.html
14 June 2016: Elementary to Elementary	http://education.rajasthan.gov.in/content/raj/education/elementary-education/hi/archive/order/eletoele.html
21 June 2016: Elementary to Secondary	http://education.rajasthan.gov.in/content/raj/education/elementary-education/hi/archive/order/govt--directions-for-ele-to-sec-school-merge--part-2-.html
22 June 2016: Elementary to Secondary	http://education.rajasthan.gov.in/content/raj/education/en/school-sec-education/elementaryeducation/archive/order/govt--directions-for-ele-to-sec-school-merge-part-1-.html

Appendix Table 3: List of People Interviewed

S. No.	Designation/Post	Location	Date of Interview
1	Assistant Director	Directorate of Elementary Education, Bikaner, Rajasthan	7 May 2018
2	Deputy Director	Directorate of Secondary Education, Bikaner, Rajasthan	7 May 2018
3	Special Education Officer	Secretariat, Jaipur	9 April 2018
4	Planning head, SSA District Office	Jaipur District Office, Jaipur	9 Apr il 2018
5	Block Elementary Education Officer	Block office, Phagi, Jaipur	21 March 2018
6	Principal/Panchayat Elementary Education Officer	Government Senior Secondary School - Vatika, Sanganer, Jaipur	2 May 2018
7	Principal/Panchayat Elementary Education Officer	Government Senior Secondary School - Bilwa, Sanganer, Jaipur	5 May 2018
8	Principal/Panchayat Elementary Education Officer	Government Senior Secondary School Niwaru - Niwaru, Jaipur	5 May 2018
9	Teacher Government Senior	Secondary School Kalwar, Kalwar, Jaipur	8 May 2018
10	Teacher Government Senior	Secondary School Niwaru, Niwaru, Jaipur	4 May 2018
11	Teacher Government Senior	Secondary School - Vatika, Sanganer, Jaipur	2 May 2018
12	Teacher Government Senior	Secondary School - Bilwa, Sanganer, Jaipur	5 May 2018
13	Teacher Government Primary	School – Jabad, Phagi, Jaipur	30 May 2018
14	Teacher Government Senior	Secondary School – Harbanshpura, Phagi, Jaipur	31 May 2018