Demography India
A Journal of Indian Association of Study of Population
Journal Homepage: https://demographyindia.iasp.ac.in/

Future classrooms: Adapting to a declining child population

Suman Negi[1]*

Abstract

One of the primary factors influencing the demand for schooling and education is the population size of a specific age group. A decline in birth rates, driven by population management policies and shifting social and cultural norms, has had significant consequences for India. In particular, the education sector is undergoing a major transformation, marked by school closures, mergers, and consolidations due to declining enrolments. The government mandates age-appropriate enrolment across all levels of education, and the Right to Education (RTE) Act ensures essential access for all children aged 6 to 14 years. Consequently, factors such as the number of schools, classrooms, infrastructure, and teachers are critical for ensuring schooling provisions and directly influenced by population size. As birth rates decline, student enrolment at various educational levels has seen a sharp decrease. According to the latest UDISE+ data, total school enrolment in India dropped from 270 million in 2015-16 to 248 million in 2022-24. Similarly, the number of schools has declined from 15.58 million in 2017-18 to 14.71 million in 2023-24, as reduced household demand for schooling has led to school closures and mergers. Given these trends, this paper aims to analyse and forecast the demographic patterns of the school-age population in relation to educational provisions. The goal is to facilitate better resource allocation and ensure that every child has access to quality education in the evolving demographic landscape.

Keywords

Age structure, population decline, school participation, school size

*Corresponding Author

[1] *Assistant Professor, Department of Educational Planning, National Institute of Educational Planning and Administration, New Delhi 110016. Email: suman@niepa.ac.in*

Introduction

The size and distribution of a population across different age groups are critical factors in a nation's development, as age structure significantly influences investment decisions. A younger population necessitates substantial investments in housing, healthcare, education, and employment opportunities to maximize its potential and benefit from the demographic dividend. In contrast, an aging population presents distinct challenges and opportunities, requiring different policy approaches. Age structures are not static; they undergo significant changes during demographic transitions, impacting various aspects of social and economic development (Kulkarni, 2021). India, one of the youngest countries in the world, has experienced substantial population growth in recent decades. As of April 2023, its estimated population stands at 142.9 million, making it the most populous country globally (UN, April 2023).

Education plays a fundamental role in this development process, prompting policymakers worldwide to prioritize educational advancements to enhance skills and keep pace with innovation. Consequently, understanding the age structure and its distribution is essential when planning for educational growth and resource allocation across sectors. This is particularly relevant in India, where declining fertility rates are reshaping demographic trends, with a noticeable impact on the population under 15 years of age.

A brief overview of Indian Education

The Indian education system is one of the largest in the world, encompassing a vast network of schools and institutions. Education in India is the responsibility of both the Central and State governments and is provided by both the public and private sectors. Since independence, universal elementary education has been a key national policy, with a constitutional commitment to ensuring free and compulsory education for all children aged 6 to 14 years under the RTE Act. Several initiatives and targeted efforts have led to the participation of approximately 248 million students in 1.47 million schools across India (2023-24). Nearly 75% of these students are in rural areas, and not all children are enrolled in school. According to the 75th round household survey conducted by the National Sample Survey Office (NSSO) in 2017–18, 3.22 crore (32.2 million) children between the ages of 6 - 17 were out of school. The Ministry of Education (MoE), however, reports a lower figure of 1.11 million.

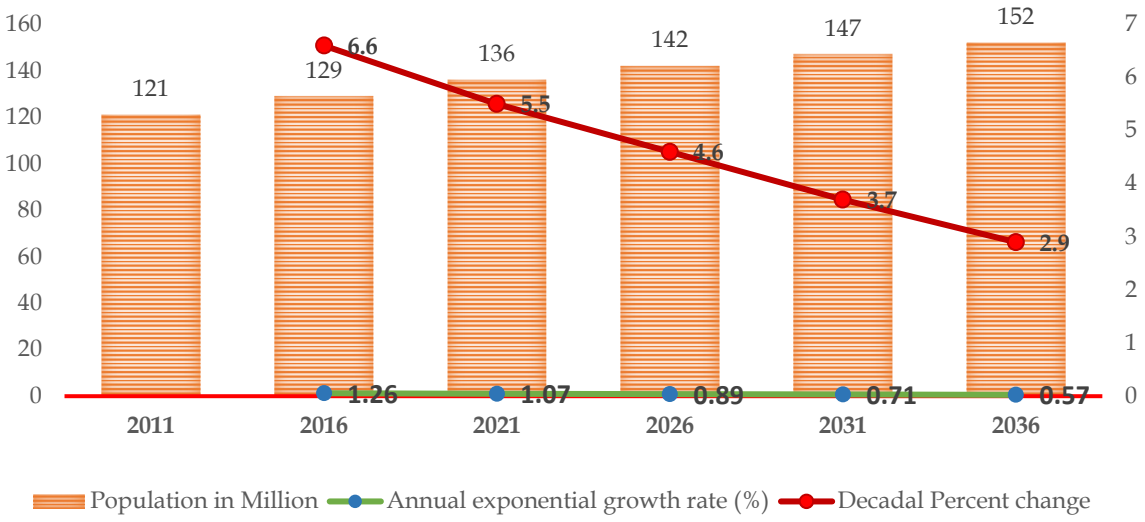
Apart from enrolment challenges, low completion rates, inconsistent learning outcomes, and overall education quality continue to be pressing concerns. In recent years, the school education sector has also experienced a decline in enrolments, as well as school closures, mergers, or consolidations. This trend is primarily attributed to declining birth rates and reduced demand for schooling. The establishment or upgrading of schools is typically based on population size, and the number of classrooms and teachers is determined by student enrolment. Since demographic factors significantly influence investment decisions in the education sector, the declining birth rate has led to a notable drop in student enrolment across different schooling levels. According to the UDISE+ data, total school enrolment in India declined from 270 million in 2015–16 to 248 million in 2023–24. Given these demographic shifts, this paper aims to analyse and forecast trends in the school-age population against the backdrop of educational provisions. Such an approach will enable better resource allocation and ensure that every child has access to quality education.

Demographic aspect of Educational Planning

Demography is a fundamental science that underpins the work of educational planners. The insights provided by demographers form the basis of most educational planning efforts (Coombs, 1970). Therefore, analysing demographic trends is essential, as these patterns significantly influence future educational demand. Understanding demographic factors enables policymakers to estimate the number of schools, teachers, and educational resources required for future students. A strong grasp of demographic trends allows educational institutions to manage population shifts effectively, preventing challenges such as overcrowding or teacher shortages. Governments can leverage demographic insights to allocate resources efficiently, ensure equitable access to education, and support long-term socio-economic growth. Failing to incorporate demographic considerations into educational planning can result in inefficient policies and disparities in quality and access.

Ta-Nagoc Chau (IIEP, 2003), in his seminal work on the demographic aspects of educational planning, highlights the importance of population distribution in educational planning for several reasons: (i) It helps measure the relative size of the school-age population, serving as the foundation for any educational policy; (ii) It aids in estimating the geographical distribution of the population, which is crucial for determining education costs, including the types, sizes, and locations of institutions and (iii) It assists in understanding the distribution of the population by sector of economic activity and occupation, helping to estimate manpower needs and establish targets for technical, vocational, and higher education. In this context, this section further explores spatio-temporal demographic trends to better understand their implications. As demographic patterns continue to evolve, they will play a crucial role in shaping the future of classrooms and overall improving educational planning practices.

Population trends: In recent years, declining population growth has become a global challenge, particularly for countries that experienced an early demographic transition. These nations are witnessing a more pronounced decline, bringing both implications and consequences. The effects of this trend can be both positive and negative. A study by the IMF (2015) on the fiscal consequences of a shrinking population highlights that declining birth rates may lead to increased investments in education and healthcare while also creating new job opportunities. However, the study also suggests that a declining working-age population could negatively impact economic growth. India has also witnessed declining trends with population growth declining from 2.1% (2001) to 1.6% (2011), but with predominantly larger base the numbers still remain very high. With the last population census enumerations having been conducted 14 years earlier in 2011, one has to depend only on projected figures. The projected figures indicate that the population is estimated to rise to 147 million in 2031 and will reach 152 million by 2036. The average annual growth rate shows a positive declining growth trend upto 2036, from 1.26% in 2016 and crossing below the 1% mark at 0.89% in 2026 and finally touching a grow rate of 0.57% in 2036. Decline in Fertility rates will impact the population below 15 years of age (CPR). It is expected that the share of the population below 15 years of age will decline from 30.8% in 2011 to 19.8% in 2036. However, the proportion of those above 15 years of age is set to rise considerably in the coming decades.



Source: Report of the Technical Group on Population Projections, MHFW, 2019.

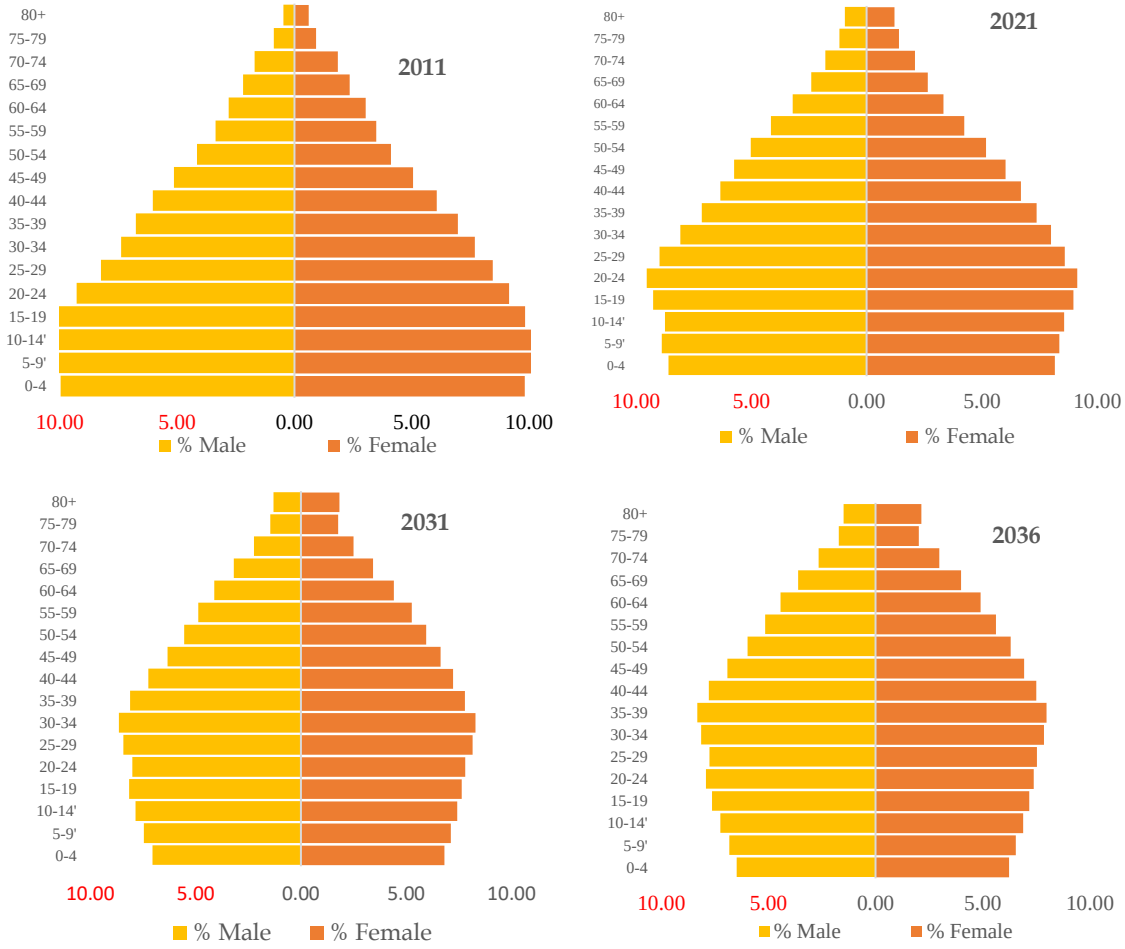
Figure 1 Population Growth Trends in India: 2011 - 2036

Contextualizing the age and sex structure: The distribution of population by age and gender is a key factor in understanding demographic shifts. This is particularly relevant to education, as different age groups correspond to specific grade levels, and policies require strict compliance with these structures. To uphold these regulations, various government initiatives, including the Right to Education (RTE) Act, ensure access to education and resource allocation for children aged 6 to 14. The National Population Census, conducted every ten years, provides age- and sex-disaggregated data (C-Series Tables), with the most recent available data from 2011. Due to this gap, educational planning heavily relies on projected estimates. One of the major challenges in this process is the lack of disaggregated data for single-year age groups, further increasing dependence on projections. This reliance can result in local-level planning based on assumptions rather than concrete data. The population pyramids in Figure 2, based on projected data, reveal a significant upward shift in the population bulge for both males and females, indicating an increase in the median age.

Age group-wise distribution of population below 25 years: India, being one of the most populous countries in the world, experiences both challenges and opportunities due to its vast population size. According to the 2011 Census, the median age was 24.9 years, indicating that nearly half of the population around 600 million people was below the age of 25. The proportion of individuals aged 0-14 years was 30.9%, while those in the 15-24 age group accounted for 19.3%. Projections suggest that the median age will increase to 30.3 years by 2026 and 34.5 years by 2036. Consequently, the share of people below 24 years is expected to decline from 50.2% in 2011 to 35.3% in 2036. Specifically, the 0-14 age group is projected to shrink to 20.2%, while the 15-24 age group is expected to decrease to 15.1%. This demographic shift highlights a gradual transition of the population bulge toward older age groups. A key impact of declining fertility rates is the reduction in the school-age population. The number of children aged 5-15 years is expected to drop from 25.4 crore (20.9%) in 2011 to 20.7 crore (13.65%) in 2036. Similarly, the 15-24 age group is projected to grow from 23.3 crore in

2011 to 25.2 crore (19.3%) in 2016, before declining to 22.7 crore (14.9%) by 2036 (MoHFW, 2019). Population trends play a crucial role in determining the demand for education. The combined effects of population control measures, along with evolving social and cultural norms, have contributed to a significant decline in birth rates across India.

The projected distribution of the population by age group reveals a steady decline in the number of children within school-going age brackets. As shown in Figure 3, the proportion of the 0–4 age group is expected to drop from approximately 10% of the total population in 2011 to 6.4% by 2036. Similarly, the share of individuals aged 10–19 is projected to decline from 20.7% to 14.5% over the same period. These downward trends are already contributing to a decrease in school enrolments, and this decline is anticipated to continue in the future.

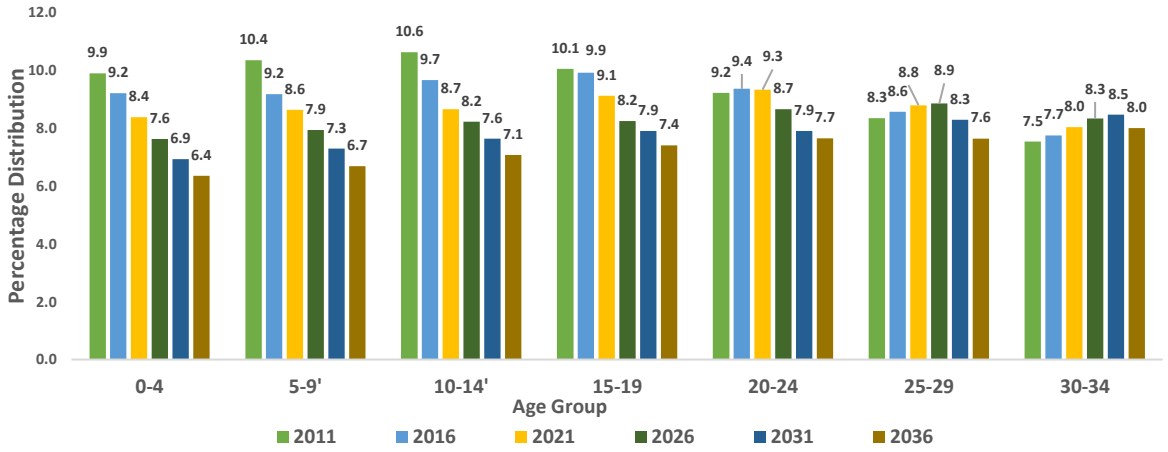


Source: Report of the Technical Group on Population Projections, MHFW, 2019.

Figure 2 Population Pyramids by Gender: India (2011 -2036)

***Age structure requirements for schooling*:** The entry level into the schooling system as per age defined by the government was 6 completed years for grade one. The NEP 2020 also suggested a new curricular and pedagogical structure framework for school education, which includes a 5+3+3+4 design, consisting of the Foundational Stage (in two parts, that is, 3 years of Anganwadi/pre-school + 2 years in primary school in Grades 1-2; both together covering ages 3-8), Preparatory Stage (Grades 3-5, covering ages 8-11), Middle Stage (Grades 6-8, covering ages 11-14), and Secondary Stage (Grades 9-12 in

two phases, i.e., 9 and 10 in the first and 11 and 12 in the second, covering ages 14-18) (NEP 2020). The pre-primary level of schooling in most government schools was not formally a part of the mainstream schooling and was rather functioning under ICDS centres like Aganwadis and Balwadis, run by the Women and Child Development Department and not the Department of Education. The Samara Shiksha (2018) followed by the NEP 2020, placed the pre-primary schooling as a continuum with the K-12 approach.

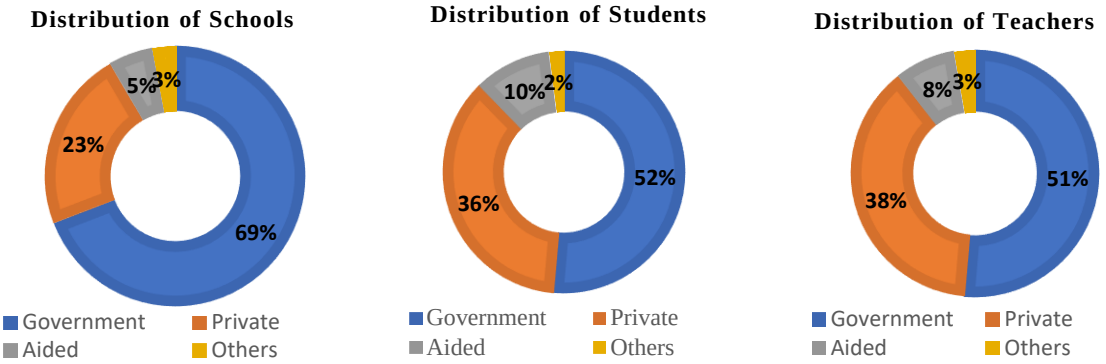


Source: Report of the Technical Group on Population Projections, MHFW, 2019.

Figure 3 Percentage Distribution of Population by Age Groups for India

Quantitative expansion of School education: As a result of various policy and program initiatives undertaken by the government, which have prioritized investment in education, the school education sector in India has expanded rapidly over the past few decades. This growth has been both quantitative and qualitative, encompassing not only an increase in the number of schools and student enrolments but also improvements in academic and physical infrastructure across regions. The number of schools has increased significantly from 0.97 million in 2000 to 1.47 million in 2023–24 (UDISE +) reflecting a substantial growth of 52% over 23 years. Student enrolment has also witnessed a notable rise, from 158 million in 2000 to 240 million in 2023–24, marking a growth rate of 51.9%. Additionally, the Gross Enrolment Ratio (GER) has improved across different education levels. The GER for upper primary reached 94.7%, for secondary education, it stood at 79.6%, and at the higher secondary level, it increased to 57.6%, indicating significant progress.

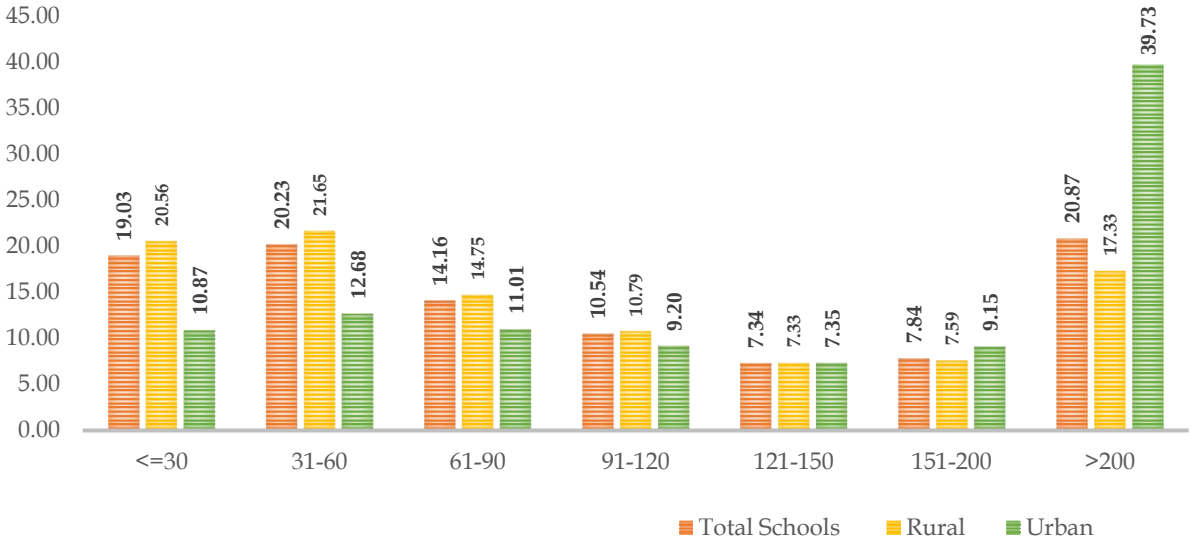
An interesting trend in increasing school participation is the significant rise in private school enrolments. The proportion of students enrolled in private schools is higher than the proportion of government schools, indicating that private institutions tend to be larger on average. Additionally, the decline in enrolments in government-managed schools suggests a shift toward privately managed institutions. While this study does not examine the reasons behind this trend, existing literature attributes the growing demand for private schooling primarily to factors such as quality of education and medium of instruction. Figure 4 illustrates that while government-managed schools constitute 69% of the total schools, they accommodate only 52% of the total students and 51% of the total teachers. In contrast, private schools make up just 23% of the total institutions but enrol 36% of the total students and employ 38% of the total teachers.



Source: UDISE + 2023-24, Ministry of Education.

Figure 4 Distribution of Schools, Students and Teachers in India

School Size: School size refers to the total number of students enrolled across various grades within a school. "The size of a school is a key aspect of its structure, as the number of students it serves has a significant impact on its organization." School size is commonly used to classify schools as small, medium, or large. In India, a large proportion of schools are small, predominantly located in rural areas and mostly government-run. An analysis of school distribution based on enrolment size, using UDISE (2017-18) data, indicates that the majority of schools in India are small.



Source: UDISE 2017-18, NIEPA New Delhi.

Figure 5 Distribution of Schools by Enrolment Size- All India

Figure 5 illustrates this distribution. The literature on small schools defines them based on enrolment size: Govinda (1995) categorizes schools with fewer than 100 students as small, while Aggarwal (1997) considers those with fewer than 60 students to be small. The data reveals a concerning trend, with 39% of all schools having an enrolment of fewer than 60 students. The proportion of small schools is notably higher in rural areas (42%) compared to urban areas (22%). Additionally, as enrolment increases, the proportion of schools decreases until the enrolment reaches 200 students.

Table 1 Distribution of Schools by Enrolment Size and Level of Schooling- All India

Enrolment Size	Distribution of Schools by Enrolment Size			
	PS(I-V)	UPS(I-VIII)	UPS(VI-VIII)	All Other
<=30	29.61	5.75	14.84	3.05
31-60	26.73	12.23	28.25	4.53
61-90	16.08	13.44	19.02	6.35
91-120	10.23	12.40	14.88	7.11
121-150	6.26	10.44	8.72	6.55
151-200	5.37	13.31	7.22	9.85
>200	5.71	32.43	7.07	62.56
Total	100.00	100.00	100.00	100.00

Source: UDISE 2017-18, NIEPA New Delhi.

A closer look at the level of schooling shows that the percentage of schools with lesser enrolment is higher in PS (I-V) and UPS (VI-VIII). UPS (I-VIII) and All Other (which includes secondary and higher secondary schools) constitute higher enrolment of students. This may be because (i) the parents prefer a continuous stream of education from primary to upper primary (ii) the UPS (I-VIII) and All Other have more grades resulting in higher enrolment. The lesser enrolment in primary sections is accounted for by fall in child population or increase in demand for private unaided schools.

Outcomes of shifting demographics

With declining fertility rates and shrinking family sizes, there is an increasing preference among most couples to have two or fewer children. This decline is not only an issue in India but a global challenge, as falling fertility rates impact the manpower requirements of many developing countries. One of the initial implications of this demographic shift is evident in school choice between government-managed and privately managed schools. Most families prefer to send their children to so-called "good schools," which largely means private institutions. This preference has led to a significant increase in private school enrolments, while participation in government schools has declined. As a result, government schools are experiencing shrinking student populations, leading to a rise in the number of small schools across India.

Beyond demographic changes, policy efforts to expand school access in recent years have contributed to the opening of new schools. Although these schools were established based on population size and projected demand, the number of students opting for government schools has steadily declined. This has resulted in surplus schools, an issue acknowledged by the government, prompting the introduction of a school rationalization, merger, and consolidation policy. These measures aim to optimize resource use efficiently. The Ministry of Education, in its 2018 report, highlighted the presence of surplus schools across all Indian states. In the 2015-16 academic year, 4,464 primary schools and 2,702 upper primary schools had no enrolled students. The NITI Aayog has termed these schools as Sub-scale schools, and further contributing to lack of resources and ineffective delivery.

Several state governments adopted policies to merge primary schools with fewer than 15 students and upper primary schools with fewer than 30 students with the nearest available school. This restructuring was intended to improve resource allocation while

ensuring compliance with the Right to Education (RTE) Act's school location and accessibility norms.

Table 4, based on UDISE data compiled by the Ministry of Education, (2018) highlights the large number of small schools in India, which is a growing concern. The data reveals consistently low participation in government-run schools. A significant number of schools had no students at all, with the national total reaching 4,464 at the primary level in 2015-16. More concerning was the proportion of schools with fewer than 15 students, which stood at 55,996, twelve times the number of schools with zero students, accounting for approximately 8% of all schools. Additionally, 26.5% of schools had fewer than 30 students. At the upper primary level, 17.3% of schools had fewer than 30 students, totalling 62,998 institutions. Another key concern is the prevalence of single-teacher schools, with 81,459 (11.5%) at the primary level and 14,786 (4%) at the upper primary level.

Table 2 Distribution of Schools based on Enrolment Size

Level	Enrolment Size	2012-13		2014-15		2015-16	
		No.	%	No.	%	No.	%
Primary Schools	Zero Enrolment School	3314	0.48	1785	0.25	4,464	0.63
	Less than 15 Enrolment	41567	6.01	48528	6.88	55,996	7.92
	Less than 30 Enrolment	150295	21.72	173391	24.57	1,87,006	26.46
Upper Primary Schools	Zero Enrolment School	987	0.28	279	0.08	2,702	0.74
	Less than 15 Enrolment	4991	1.40	4605	1.28	22,312	6.14
	Less than 30 Enrolment	18415	5.17	19538	5.45	62,988	17.34

Source: Guidelines for Rationalisation of Small Schools, MHRD, 2017.

Future concerns and way forward

It is evident that a large number of schools are closing, with a noticeable shift towards privately managed schools across different regions and localities in India. This raises concerns for policymakers about how to address the shrinking size of public schools and its broader implications. Is closing or merging government schools the only solution? This issue is being contested in the implementation processes adopted for the rationalization and consolidation of schools. A key question is what happens to the existing infrastructure, as approximately 87,012 schools were closed within a span of six years from 2017/18 to 2023/24). Concerns over teacher demand and supply also loom large, raising the issue of whether more teachers are needed or not. Additionally, while budget allocations for government schools continue to increase, student enrolment is declining, leading to a rise in the per-unit cost of schooling. This brings us to the larger question: how should we rationalize our limited resources to make school education more viable?

Investing in the quality and accessibility of education is essential to ensuring that all students regardless of their location, age, or school size receive a high standard of education. In pursuit of improving access and quality as a policy goal, it is crucial to address the existing learning crisis and redefine what quality means. A collaborative approach involving the government, educators, and communities is vital for navigating the challenges posed by demographic changes. Governments across political lines must come together to plan for the future, ensuring that adequate education services are delivered. While declining population trends may

currently impact the closure of primary schools, these effects are likely to escalate at higher levels of education in the future.

References

Aggarwal, Y (1997): Small Schools: Issues in Policy and Planning, *NIEPA Occasional Papers No.23* 1997. https://niepa.ac.in/New/download/Publications/NUEPA%20Occasional%20Paper%20No-23-Small%20Schools-Issues%20in%20Policy%20and%20Planning_HK_No%20Acc_pp18-19_missing.pdf

Census of India, Office of the Registrar General of India. https://censusindia.gov.in/census.website/data/census-tables

Change in demographic profile major cause of declining student strength in schools (2024): Centre for Policy Research, online article. Change in demographic profile major cause of declining student strength in schools - *Centre for Public Policy Research (CPPR)*

Chau, Ta-Nagoc (2003): Demographic Aspect of Educational Planning, *IIEP Paris in Fundamentals of Educational Planning.* https://unesdoc.unesco.org/ark:/48223/pf0000129355

Clements, B (et al) 2015: The Fiscal Consequences of Shrinking Populations, International Monetory Fund, SDN/15/21. The Fiscal Consequences of Shrinking Populations: by Benedict Clements, Kamil Dybczak, Vitor Gaspar, Sanjeev Gupta, and Mauricio Soto ; *IMF Staff Discussion Notes No. 15/21;* October 2015

Coombs, P.H (1970): What is Educational Planning. IIEP, Paris. https://unesdoc.unesco.org/ark:/48223/pf0000076671

Guidelines for rationalisation of small schools across schools for better efficiency (2017), Ministry of Education, New Delhi. https://www.education.gov.in/sites/upload_files/mhrd/files/Guidelines%20for%20Rationalization.pdf

Kulkarni, P.M. (2021): Demographic and Regional Decomposition of Prospective Population Growth for India, 2021 to 2101, in *Demography India. Vol. 50, No. 2 (2021)*, pp. 1-15. ISSN 0970-454X. https://iasp.ac.in/uploads/journal/1%20313_Prof.%20P.M.%20Kulkarni-1641028952.pdf

New Education Policy 2020, Ministry of Education, GoI. https://www.education.gov.in/sites/upload_files/mhrd/files/NEP_Final_English_0.pdf

Population Projections for India and States 2011 – 2036, *Ministry of Health and Family Welfare,* GoI. 2019. https://nhm.gov.in/New_Updates_2018/Report_Population_Projection_2019.pdf

Systemic Transformation of School Education The SATH-E Experience (2019), NITI Aayog, GoI, New Delhi. BCG_SATHE_DIGITAL_13112021_0.pdf

UDISE +, Ministry of Education, GoI. https://dashboard.udiseplus.gov.in/

UDISE, National institute of Educational Planning and Administration, New Delhi.

United Nations Global Issues-Population (2023): https://www.un.org/en/global-issues/population#:~:text=China%20and%20India:%20most%20populous,the%20population%20of%20mainland%20China.&text=153)-,An%20error%20occurred.,is%20disabled%20in%20your%20browser.