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A Trend Analysis of Teacher Retention and Attrition Patterns in Government Schools: Evidence from National Educational Statistics (2015–2023)

Assanu Augustine

Assistant Professor, Department of Mathematics, Marian College Kuttikkanam (Autonomous), Mahatma Gandhi University, Kottayam, Kerala, India.

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Abstract

Teacher retention and attrition represent critical challenges in the Indian education system, particularly within government schools. This study employs a secondary data analysis approach to examine longitudinal trends in teacher workforce dynamics across Indian government schools from 2015 to 2023. Drawing upon data from the Unified District Information System for Education Plus (UDISE+), Parliamentary Standing Committee Reports, and Ministry of Education statistics, the research investigates patterns of teacher vacancies, contractual employment, regional disparities, and their implications for educational quality. The findings reveal persistent structural challenges including approximately 10 lakh vacant teaching positions, disproportionate distribution between rural and urban areas, and an increasing reliance on contractual teachers. The study identifies key factors influencing attrition including inadequate compensation, limited career progression, excessive administrative burden, and geographical deployment concerns. Regional analysis demonstrates significant interstate variations, with states like Bihar, Uttar Pradesh, and Jharkhand accounting for over half of total vacancies. The research contributes to policy discourse by recommending evidence-based interventions aligned with the National Education Policy 2020, emphasizing the urgent need for systematic recruitment, improved service conditions, and rationalized teacher deployment strategies to achieve the envisioned pupil-teacher ratio of 30:1.

Keywords: - Teacher Retention, Teacher Attrition, Government Schools, UDISE+, NEP 2020, Pupil-Teacher Ratio

I. INTRODUCTION

The teaching profession occupies a pivotal position in shaping human capital and national development. Teachers constitute the most significant school-based determinant of student achievement, making their recruitment, retention, and professional development matters of paramount policy concern (Borman & Dowling, 2008; Nguyen et al., 2020). The Indian school education system, one of the largest globally with nearly 14.72 lakh schools, over 98 lakh teachers, and approximately 24.8 crore students, faces persistent challenges in maintaining an adequate and qualified teaching workforce (Ministry of Education, 2024).

Teacher attrition, defined as teachers exiting their current schools through transfers, resignations, or departures from the profession, significantly impacts educational quality and equity. Research demonstrates that teacher turnover negatively affects student achievement, including students whose teachers remained (Ronfeldt et al., 2013). The National Education Policy (NEP) 2020 acknowledges these concerns, positioning teachers at the centre of educational reforms and mandating a pupil-teacher ratio (PTR) of under 30:1, with areas having socio-economically disadvantaged students aiming for 25:1 (Ministry of Education, 2020).

Despite policy commitments, Parliamentary Standing Committee reports consistently highlight approximately 10 lakh vacant teaching positions across government schools, raising questions about the system's capacity to deliver quality education (Parliamentary Standing Committee, 2023, 2025). The proliferation of contractual teacher appointments, single-teacher schools, and interstate disparities in teacher distribution compound these challenges. This study aims to analyse longitudinal

trends in teacher retention and attrition patterns in Indian government schools from 2015 to 2023, examining underlying factors and proposing evidence-based policy recommendations.

The research questions guiding this study are:

- What are the longitudinal trends in teacher vacancies and workforce composition in Indian government schools?
- What regional disparities exist in teacher distribution and attrition?
- What factors contribute to teacher attrition in the Indian context?
- What policy implications emerge for achieving NEP 2020 goals?

II. LITERATURE REVIEW

2.1. Global perspectives on teacher attrition

The international literature on teacher attrition identifies multiple moderating factors spanning personal characteristics, workplace conditions, and policy environments. (Borman & Dowling, 2008) comprehensive meta-analysis of 34 studies identified that teacher attrition is influenced by personal and professional factors that evolve across career paths, with workplace conditions playing a more substantial role than previously acknowledged. Their findings suggest attrition represents a problem addressable through targeted policies and initiatives.

(Nguyen et al., 2020) updated this synthesis through analysis of 120 studies, emphasizing the evolving nature of teacher labour markets and policy initiatives. Their expanded conceptual framework highlights burnout dimensions, job satisfaction, and organizational characteristics as key predictors of turnover intentions. Meta-analytic findings indicate significant positive relationships between exhaustion ($r+ = 0.41$), depersonalization ($r+ = 0.32$), reduced accomplishment ($r+ = 0.21$), and teachers' intentions to quit.

2.2. The Indian context: structural challenges

Research on Indian teacher workforce dynamics reveals unique structural challenges. (Muralidharan & Sundararaman ,2013) examined contract teachers through experimental evidence from Andhra Pradesh, finding that contract teachers demonstrated at least comparable effectiveness to regular civil-service teachers while earning approximately one-fourth the salary. However, they cautioned that contract mechanisms "as they are" have limitations, with teachers showing fairly low average effort in absolute terms.

(Ramachandran et al., 2018) conducted multi-state studies examining contractual employment's political economy, noting that protests, strikes, and litigation consume substantial administrative and teacher time. States like Rajasthan and Madhya Pradesh, early adopters of contract teachers, have either reversed or significantly modified their policies, indicating implementation challenges. (Das et al., 2016) estimated the fiscal cost of teacher absence at $1.5 billion annually, finding 23.6% teachers absent during unannounced visits. Their analysis suggests that investing in monitoring could be ten times more cost-effective than hiring additional teachers.

Recent qualitative research by (Sahu &Sharma ,2023) explored precarity among contract teachers in Odisha, identifying six dimensions of vulnerability: prioritization of non-teaching work, financial hardships, sense of inferiority, transfer anxiety, discrimination experiences, and desires for course correction. These findings illuminate the human costs of contractual employment policies.

2.3. Policy framework: RTE Act and NEP 2020

The (Right to Education Act, 2009) established normative benchmarks including a PTR of 30:1 for primary schools and 35:1 for upper primary and secondary levels. The NEP 2020 reaffirms these standards while emphasizing foundational literacy and numeracy, teacher professional development, and the establishment of a National Professional Standards for Teachers. The policy acknowledges that achieving universal access requires filling teacher vacancies at the earliest, ensuring appropriate PTRs, and providing continuous professional development (Ministry of Education, 2020). However, (Kingdon ,2025) challenges conventional narratives about teacher shortages, arguing that after adjusting for small schools with surplus teachers and removing potential enrollment inflation, India may have a net surplus rather than deficit of teachers, highlighting the complexity of workforce planning.

III. METHODS

3.1. Research design

This study employs a descriptive-analytical research design utilizing secondary data analysis. The approach enables examination of large-scale national datasets to identify patterns, trends, and correlations in teacher workforce dynamics. Secondary data analysis offers advantages of accessing comprehensive, nationally representative information while enabling longitudinal comparisons across multiple years.

3.2. Data sources

The primary data sources include:

- Unified District Information System for Education Plus (UDISE+) reports from 2018-19 to 2023-24, providing comprehensive statistics on schools, teachers, enrollment, and infrastructure

- Parliamentary Standing Committee Reports on Education (2023, 2025) containing data on teacher vacancies, sanctioned posts, and recruitment status;
- Ministry of Education Annual Reports and Parliamentary Questions responses;
- Education International Research reports
- Published academic literature on teacher workforce in India.

The UDISE+ system, operational since 2018-19, represents India's comprehensive school education database covering over 14.7 lakh schools, 98 lakh teachers, and 24.8 crore students.

3.3. Analytical framework

Data analysis involved descriptive statistical techniques including trend analysis, percentage calculations, and comparative analysis across states and time periods. The analytical framework examined:

- Teacher vacancy trends at elementary and secondary levels;
- Sanctioned versus filled positions;
- Contractual versus permanent teacher proportions;
- Regional variations in teacher distribution;
- Pupil-teacher ratios across education levels; and
- Single-teacher school prevalence.

3.4. Limitations

The study acknowledges limitations inherent in secondary data analysis. The transition from UDISE to UDISE+ in 2018-19 introduced methodological changes affecting direct comparisons with earlier data. The further transition to Student Data Management Information System (SDMIS) in 2022-23 similarly affects comparability. Additionally, self-reported administrative data may contain inconsistencies or reporting variations across states.

IV. RESULTS

4.1. National trends in teacher workforce

Analysis of UDISE+ data reveals modest improvements in the overall teaching workforce. Total teachers increased from 94.3 lakh in 2018-19 to 95.07 lakh in 2021-22, and further to approximately 98 lakh by 2023-24. Despite this growth, persistent vacancies remain a significant concern. The (Parliamentary Standing Committee, 2025) reported that in 2023-24, out of 63,26,207 sanctioned teaching posts at primary and secondary levels, 9,59,148 remained vacant. By 2024-25, sanctioned posts increased to 69,85,760, but vacancies also rose to 9,82,662.

Table 1. Teacher Vacancies by Education Level (2023-24 to 2024-25)

Level	Vacancies 2023-24	Vacancies 2024-25
Elementary	7,24,000	5,72,000
Secondary	2,34,000	4,09,000
Total	9,59,148	9,82,662

Source: Parliamentary Standing Committee Report (2025)

4.2. Regional disparities in teacher distribution

Significant interstate variations characterize teacher distribution across India. Data from December 2023 indicates that Bihar, Uttar Pradesh, and Jharkhand collectively account for more than half of total vacancies at primary and secondary levels. Bihar alone reported over 2.25 lakh teaching vacancies, despite announcing large-scale recruitment drives. Conversely, states including Goa, Kerala, Maharashtra, Meghalaya, Nagaland, and Odisha reported zero vacancies at the primary level, while Kerala, Maharashtra, Nagaland, Odisha, and Sikkim reported zero vacancies at the secondary level.

The rural-urban divide presents additional concerns. Approximately 75% of teachers work in rural areas, yet rural schools demonstrate adverse infrastructure indicators. Only 18.47% of rural schools have internet access compared to 47.29% of urban schools. Furthermore, 1,17,285 single-teacher schools were reported in 2021-22, with 89% located in rural areas. By 2024-25, single-teacher schools decreased to 1,04,125, representing a 6.2% reduction but still affecting 3.37 million students.

4.3. Contractual employment patterns

The proliferation of contractual teacher appointments represents a significant trend. The (Parliamentary Standing Committee ,2025) strongly opposed hiring teachers on contractual basis, noting it undermines constitutional provisions of reservation for SC, ST, and OBC communities in government jobs. Even centrally administered institutions including Kendriya Vidyalayas (KVs) and Jawahar Navodaya Vidyalayas (JNVs) reported 30-50% vacancies being filled through contractual appointments. Notably, the National Council for Teacher Education (NCTE) itself has not recruited permanent teaching or non-teaching staff since 2019, with 54% of Group A posts, 43% of Group B posts, and 89% of Group C posts remaining vacant.

4.4. Pupil-teacher ratio trends

Despite workforce challenges, aggregate PTR data shows improvement. The national PTR at primary level improved

from 26:1 to 20:1 between 2018-19 and 2024-25. Stage-specific ratios in 2024-25 stood at: Foundational - 10:1, Preparatory - 13:1, Middle - 17:1, and Secondary - 21:1, all surpassing NEP's 30:1 benchmark. However, these aggregates mask significant state-level variations, with Bihar maintaining PTRs exceeding 26:1. The improvement in aggregate PTR alongside persistent vacancies reflects declining enrollment in government schools, with 1.5 crore students dropping out between 2021-22 and 2022-23.

V. DISCUSSION

The findings illuminate a complex landscape of teacher workforce challenges in Indian government schools. The persistence of approximately 10 lakh vacancies despite policy commitments suggests systemic barriers to recruitment and retention. Several factors merit discussion.

First, the structural issue of contractual employment creates precarity that affects teacher motivation and professional identity. Research indicates contract teachers experience financial hardships, sense of inferiority, and anxiety about transfers (Sahu et al., 2023). While some evidence suggests contract teachers demonstrate higher effort rates (Muralidharan & Sundararaman, 2013), the human costs and constitutional implications of bypassing reservation provisions demand reconsideration of this approach.

Second, the paradox of improved aggregate PTRs alongside persistent vacancies reflects broader demographic and educational dynamics. The rapid growth of private schooling, RTE Act provisions mandating 25% reservation in private schools, and declining fertility rates have contributed to reduced enrollment in government schools. (Kingdon, 2025) provocatively argues this creates a potential teacher surplus rather than shortage when accounting for small schools. This perspective, while contested, highlights the need for rationalized deployment strategies rather than simple recruitment expansion.

Third, interstate disparities demand differentiated policy approaches. The concentration of vacancies in educationally disadvantaged states including Bihar, Uttar Pradesh, and Jharkhand reflects broader governance and resource allocation challenges. Conversely, states demonstrating zero vacancies may offer implementation models worthy of examination and adaptation.

Fourth, the prevalence of single-teacher schools, predominantly in rural areas, raises concerns about educational quality and teacher workload. Multi-grade teaching in resource-constrained environments challenges effective pedagogy and limits student learning opportunities. The school complex model proposed under NEP 2020, consolidating resources across clusters, offers a potential structural solution.

Finally, the six-year hiring freeze in NCTE itself symbolizes systemic neglect of teacher education infrastructure. Building teacher capacity requires institutional strengthening at regulatory and training levels alongside school-level recruitment. The Parliamentary Standing Committee's directive to fill vacancies by March 2026 represents a necessary but insufficient response without addressing underlying systemic constraints.

VI. CONCLUSION

This study examined longitudinal trends in teacher retention and attrition patterns in Indian government schools from 2015 to 2023. The analysis reveals persistent challenges including approximately 10 lakh vacant positions, significant interstate disparities concentrated in educationally disadvantaged states, increasing reliance on contractual appointments, and continued prevalence of single-teacher schools in rural areas.

The findings support several policy recommendations. First, time-bound recruitment of permanent teachers should replace contractual appointments, ensuring compliance with constitutional reservation provisions. Second, rationalized teacher deployment strategies should address mismatches between teacher availability and student enrollment patterns. Third, improved service conditions including competitive compensation, career progression pathways, and reduced administrative burden are essential for retention. Fourth, strengthening teacher education institutions, particularly DIETs, will build long-term capacity. Fifth, the school complex model should be expedited to optimize resource utilization in rural areas.

Future research should examine state-specific implementation experiences, the impact of contractual employment on student outcomes, and the effectiveness of various retention interventions. Longitudinal studies tracking individual teacher career trajectories would provide granular insights into attrition factors. As India pursues NEP 2020's vision of universal quality education by 2030, addressing teacher workforce challenges remains foundational to success.

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