SJIF Impact Factor (2025): 8.688| ISI I.F. Value: 1.241| Journal DOI: 10.36713/epra2016 ISSN: 2455-7838(Online)
EPRA International Journal of Research and Development (IJRD)
Volume: 10 | Issue: 12 | December 2025 - Peer Reviewed Journal

GEOPOLITICS: STATUS OF PRIMARY AND SECONDARY SCHOOL EDUCATION IN ANDHRA PRADESH: DURING 2013-2023

Mallam Anjali[1], Dr. K.V.R. Srinivas[2]
[1]Research Scholar, Department of Education, Acharya Nagarjuna University, Guntur, Andhra Pradesh, India
[2]Faculty, Department of Political Science and Public Administration, Acharya Nagarjuna University, Guntur, Andhra Pradesh, India

Article DOI: https://doi.org/10.36713/epra25294
DOI No: 10.36713/epra25294

ABSTRACT
Political transitions significantly influence educational outcomes in developing economies, yet empirical evidence linking regime changes to enrollment patterns remains limited. The paper explores political governance and good educational results in Andhra Pradesh(2013-2023) in two different governments: Telugu Desam Party (TDP, 2014-2019) and Yuvajana Sramika Rythu Congress Party (YSRCP, 2019-2023). We analyzed primary and upper primary enrollment patterns by applying log-linear growth models, compound annual growth rate (CAGR) analysis, paired t-tests and Gender Parity Index (GPI) computations based on secondary data from U-DISE. The research pitted TDP's technology-first approach against YSRCP's infrastructure-based Nadu-Nedu scheme. Primary enrollment increased from 0.03% yearly under TDP rule to an average of 4.01% during YSRCP ($p<0.01$), upper primary enrollment growth reversed from a household -4.68% drop to a +1.13% ($p<0.01$). Female enrollment showed a more robust positive response (4.23% vs. 3.84% for males) with an improvement in GPI from 0.914 to 0.932 ($p=0.023$). Infrastructure financing had tangible enrollment effects, though post-2021 sustainability issues also arose. Geopolitical upheavals have profound effects on the political economy of educational access which is evidenced in its policy statements and distribution of resources. Integrated infrastructure interventions are more efficacious than piecemeal technological upgrading in settings of basic deficits, substantiating the role of gender-sensitive infrastructure in enhancing equity.

KEYWORDS: *Geopolitics, Educational Policy, Enrollment Trends, Andhra Pradesh, Political Economy of Education, Nadu-Nedu, Gender Parity*

1.INTRODUCTION

Education is one of the most powerful tools for social change and economic growth; however, its path is always shaped by the politics of the place and period in which it is situated. The purview of the state governments in the Indian federal structure is expansive when it comes to the domain of formulating and implementing educational policies, thereby rendering the convergence of geopolitics and education highly significant. Andhra Pradesh offers a fascinating opportunity for studying the impact of political change on education.

Between 2013 and 2023, there were two divergent political regimes the Telugu Desam Party(TDP) from 2014 to 2019 and the Yuvajana Sramika Rythu Congress Party(YSRCP) from 2019 onwards – philosophies, priorities, modes of delivery and implementation in education vastly differing. The geopolitics-education nexus is not just about policy statements; it's about how countries allocate resources, reform administrations, prioritize infrastructure development, and are willing politically to have education projects persist over generations. India's political parties thrive in its vibrant democracy performatively issue education both as a developmental agenda and as an electoral strategy, so education outcomes are symptomatic of larger patterns of governance. This dynamic has been even more so after the bifurcation of the state in 2014.

Led by N. Chandrababu Naidu, the TDP government prioritized technology infusion, public-private partnerships, and skill development aligned with its "Smart State" agenda and rolled out digital classrooms, tablet distribution schemes, and connectivity enhancements. The ambitious Nadu-Nedu (Then and Now) scheme, which promises to revamp infrastructure across the state, was unveiled by the YSRCP under J.S. Jagan Mohan Reddy in 2019. This set a new agenda for inclusive schooling, accompanying large-scale financial commitments for infrastructure modificaiton and English medium instruction, and for providing nutritional support.

In a systematic way the study focuses on enrollment trends at the primary and upper primary levels disaggregated by gender and for overall participation. Studies indicate that the quality of infrastructure plays a significant role in the decision to enroll, especially

SJIF Impact Factor (2025): 8.688| ISI I.F. Value: 1.241| Journal DOI: 10.36713/epra2016 ISSN: 2455-7838(Online)
EPRA International Journal of Research and Development (IJRD)
Volume: 10 | Issue: 12 | December 2025 - Peer Reviewed Journal

for marginalized populations, the girl child. The analysis applies quantitative methodology including log-linear growth rate estimation, calculation of CAGR, trend coefficient if calculation and statistic-significance testing for the purpose of detecting any shifts that correspond to regime changes.

The importance goes beyond Andhra Pradesh. In mind of growing divergence in developmental outcomes among Indian states led by different political regimes, the findings about how governance models shape fundamental social sectors will be particularly important for comparative policy analysis and for understanding the prospects for educational equity and excellence.

2. THEORETICAL FRAMEWORK: GEOPOLITICS- EDUCATION NEXUS MODEL

The connections between political rule and educational performance can be best understood by employing analytical tools that characterise the immediate policy outputs along with subsequent systemic policy effects. We introduce the Geopolitics-Education Nexus (GEN) Model, which frames education as both a by-product of political imperatives and a source of political legitimacy.

2. 1 The GEN Model Architecture

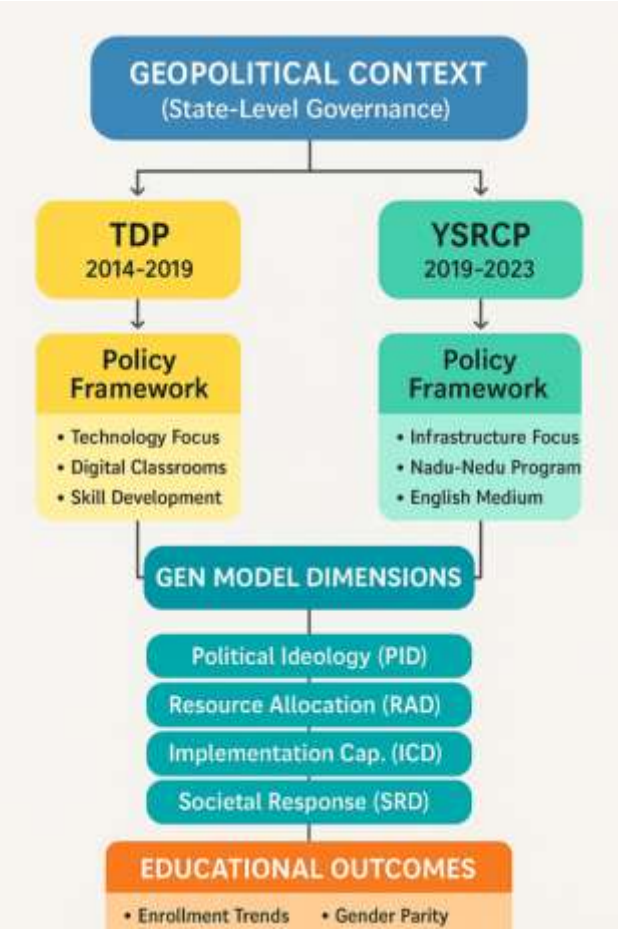
The GEN Model is grounded on four interrelated dimensions (Figure 1):
Political Ideology Dimension (PID): Political parties are based on different ideologies that influence what they think is important in education. In contrast to progressive ideology narratives that might focus on equity and inclusion, market ideology narratives are likely to emphasize efficiency and skill compatibility with labour market requirements. In TDP of Andhra Pradesh, the turn towards technocracy was a manifestation of neo-liberal policies and was aligned with modernization and competitiveness paradigms and in the case of YSRCP, the infra-structural focus through its Nadu-Nedu program was a manifestation of welfare politics which favored greater state intervention as a means to bridging gaps in education. Resource Allocation Dimension (RAD) Geopolitics plays a fundamental role in shaping budget priorities. Educational spending is in competition with other areas of development, and the distribution of resources is significantly influenced by political calculations with regard to electoral advantages. The distribution of resources between rural and urban areas, among different levels of education and between capital and revenue expenditure corresponds to political priorities and potential beneficiaries. Implementation Capacity Dimension (ICD) As the saying goes, political will is flesh and bones, but it has to be followed up by enlightened administrative will. The extent to which policy statements translate into real action is contingent on the effectiveness of bureaucratic machinery, the degree of congruity between political leadership and administrative apparatus, and the monitoring mechanisms in place. Here, it is acknowledged that the same polices under different regimes may grant different outcomes due to the degrees in the execution below the surface. Societal Response Dimension (SRD) Participation in education is a result of not only supply-side activities but also demand-side processes shaped by parental aspirations, perceived quality of schools, cost of educational opportunity, and cultural attributes. Political systems capable of matching the expectations of society tend to have higher participation rates in education, thus reinforcing positive governance and outcome cycles.

2.2 Visual Representation: Andhra Pradesh Geopolitics-Education Framework

Figure 1: Geopolitics-Education Nexus Model for Andhra Pradesh

The GEN Model suggests that the four dimensions shape the patterns of enrollment through their interaction, and regime change disrupts and recalibrates the four dimensions at all four levels of analysis. The model suggests a heuristic interpretation of empirical trends, but also that education systems have an internal momentum or inertia which implies that the effects of policy are likely to be delayed.

SJIF Impact Factor (2025): 8.688| ISI I.F. Value: 1.241| Journal DOI: 10.36713/epra2016 ISSN: 2455-7838(Online)
EPRA International Journal of Research and Development (IJRD)
Volume: 10 | Issue: 12 | December 2025 - Peer Reviewed Journal



2.3 Mathematical Representation of the GEN Model

The GEN Model can be expressed mathematically as:

Educational Outcome (EO) = f(PID, RAD, ICD, SRD, t)

Where:

- EO represents measurable educational outcomes (enrollment, retention, learning)
- t represents time, acknowledging temporal lags in policy impacts
- The function f captures the interactive effects between dimensions

More specifically, for enrollment trends:

$$E(t) = \alpha + \beta_1(PID) + \beta_2(RAD) + \beta_3(ICD) + \beta_4(SRD) + \beta_5(Regime) + \varepsilon$$

Where:

- E(t) = Enrollment at time t
- α = Baseline enrollment independent of regime factors
- β_1-β_4 = Coefficients representing the impact of each dimension
- β_5 = Regime effect (dummy variable: TDP = 0, YSRCP = 1)
- ε = Error term capturing unobserved factors

3.OBJECTIVE OF THE STUDY

This research has a twofold aim:

Objective 1:The main objective of the study is to examine trends in enrollment specifically in the context of primary and upper primary education in Andhra Pradesh for 2013-2023, and identify the trends of growth, decline and stabilization in different political regimes and gender- wise in educational participation employing the advanced statistical method.

Objective 2: To explore the link between political change and educational results through an analysis of contrasting policy paradigms, implementation strategies, and consequent enrollment trends under the political regimes of TDP and YSRCP in order to

SJIF Impact Factor (2025): 8.688| ISI I.F. Value: 1.241| Journal DOI: 10.36713/epra2016 ISSN: 2455-7838(Online)
EPRA International Journal of Research and Development (IJRD)
Volume: 10 | Issue: 12 | December 2025 - Peer Reviewed Journal

explain how geographical politics mediates educational opportunity and equality by way of quantitative modeling and hypothesis testing.

4.REVIEW OF LITERATURE AND GAP IN RESEARCH

The politics of education has been extensively studied, but fine-grained regime enrollment studies are scarce. Tilak (2006) found that those Indian states which have greater political will towards education do far better in terms of enrolment, implying that political statements have to be backed by financial and administrative commitments. Kingdon (2007) Ross does demonstrate the connection between quality of government schools and parental choice and its wider implications for governance/credibility but(I am not sure how this is linked here) while Mehrotra (2006), cited, found balloting political leadership and administrative capacity as the key contributors to universialisation of elementary education. The importance of infrastructure has been established. Borkar (2016) found positive associations between quality of school infrastructure and enrollment, especially for socially excluded groups, and Barrett et al. (2019) documented international evidence on that full-scale infrastructure interventions have strong positive effects on enrollment. There have been contributions into gender aspects, i.e. Chanana (2000) who attributed the existence of the gap to socio-cultural impediments and lack of infrastructure and Sahoo (2016) who showed that a rebalance in female enrolment ratios occurred following focused efforts.

Yet there are important gaps in the research. Quite a few studies look at long-term trends rather than regime-specific effects over five-year cycles of politics. Within-state comparative studies of enrollment trends among different parties in power are even fewer, particularly in the case of post-bifurcation Andhra Pradesh. Although infrastructure interventions are described with some frequency, empirical, quantitative studies that associate particular policy interventions with enrollment outcomes are not numerous.

The paper conjoins these gaps and provides not only an overview of trends in enrollment that correspond exactly to change in political regimes, but, based on sophisticated statistical methods that allow for the identification of meaningful changes, the trends are interpreted within the framework of specific plans pursued by the TDP and the YSRCP during 2013-2023.

5. RESEARCH METHODOLOGY

5. 1. Data Sources and Period Selection

The study is Based on the Secondary Data from Unified District Information System for Education (U-DISE) which is a Data Bank maintained by Ministry of Education, Government of India. The study covers 2013-14 to 2022-23 including the last year of the Congress regime, full TDP term (2014-2019) as well as the initial two years of JSRCP rule (2019-2023). This allows for contrasting distinct political regimes while the periodization is analytically manageable.

5.2 Statistical Tools and Models

This research employs multiple sophisticated analytical techniques to ensure robust conclusions:

5.2.1 Log-Linear Growth Rate Model

The log-linear growth rate method provides annualized growth rates accounting for compounding effects:

$$r = [(\ln(Y_t) - \ln(Y_0)) / t] \times 100$$

Where:

- r = Annual growth rate (%)
- Y_t = Enrollment in final year
- Y_0 = Enrollment in initial year
- t = Number of years
- ln = Natural logarithm

This method offers advantages over simple percentage change calculations by:

- Normalizing growth rates across different base values
- Accounting for compounding effects
- Providing symmetric treatment of growth and decline
- Enabling meaningful comparison between periods of different durations

5.2.2 Compound Annual Growth Rate (CAGR)

For validation and alternative perspective, CAGR is calculated:

$$CAGR = [(Y_t/Y_0)^{(1/t)} - 1] \times 100$$

CAGR provides the geometric mean growth rate, particularly useful for understanding overall trajectory.

SJIF Impact Factor (2025): 8.688| ISI I.F. Value: 1.241| Journal DOI: 10.36713/epra2016 ISSN: 2455-7838(Online)
EPRA International Journal of Research and Development (IJRD)
Volume: 10 | Issue: 12 | December 2025 - Peer Reviewed Journal

5.2.3 Trend Coefficient Analysis

Linear trend equations are estimated for each period:

E = a + bt

Where:

- E = Enrollment
- t = Time (year index)
- a = Intercept (baseline enrollment)
- b = Slope coefficient (trend)

The slope coefficient b indicates the average annual absolute change in enrollment, while R^2 measures the proportion of variance explained by the linear trend.

5.2.4 Gender Parity Index (GPI)

Gender parity is measured using UNESCO's standard formula:

GPI = (Female Enrollment / Male Enrollment)

Values approaching 1.0 indicate gender parity, values below 1.0 indicate female disadvantage, and values above 1.0 indicate male disadvantage.

5.2.5 Paired t-Test for Regime Comparison

To test whether enrollment differences between regimes are statistically significant:

H_0: $\mu_1 = \mu_2$ (No difference in mean enrollment between regimes) **H_1: $\mu_1 \neq \mu_2$** (Significant difference exists)

Test statistic: $\mathbf{t = (\bar{x}_1 - \bar{x}_2) / \sqrt{(s^2_1/n_1 + s^2_2/n_2)}}$

Where $\bar{x}$ represents mean enrollment, s^2 represents variance, and n represents sample size.

5.2.6 Coefficient of Variation (CV)

To measure enrollment stability within each regime:

$CV = (\sigma/\mu) \times 100$

Where σ is standard deviation and μ is mean enrollment. Lower CV indicates more stable enrollment patterns.

5.3 Period Classification

Period-I (TDP Era): 2015-16 to 2018-19, representing the pre-Nadu-Nedu phase with TDP's policy framework emphasizing technology integration and skill development.

Period-II (YSRCP Era): 2019-20 to 2022-23, representing the post-Nadu-Nedu implementation phase with YSRCP's infrastructure-centric approach.

5.4 Analytical Software

Data analysis was conducted using:

- Microsoft Excel for basic calculations and data organization
- Statistical functions for growth rate computations, trend analysis, and hypothesis testing
- Visualization tools for graphical representations

6. DATA ANALYSIS AND FINDINGS

6.1 Primary Data Presentation

Table 1: Enrollment Trends in Primary and Upper Primary Schools (2013-14 to 2022-23)

Year	Primary Boys	Primary Girls	Primary Total	Upper Primary Boys	Upper Primary Girls	Upper Primary Total
Period-I:				TDP Governance		
2013-14	14,32,564	13,69,849	28,02,413	6,93,544	6,32,833	13,26,377
2014-15	13,83,195	13,16,924	27,00,119	6,67,556	6,13,316	12,80,872
2015-16	12,49,688	11,84,344	24,34,032	5,93,150	5,47,122	11,40,272
2016-17	12,38,099	11,27,048	23,65,147	5,60,873	5,08,252	10,69,125
2017-18	12,81,908	11,52,771	24,34,679	5,27,580	4,65,108	9,92,688
2018-19	12,71,089	11,61,237	24,32,326	5,24,403	4,69,856	9,94,259

SJIF Impact Factor (2025): 8.688| ISI I.F. Value: 1.241| Journal DOI: 10.36713/epra2016 ISSN: 2455-7838(Online)
EPRA International Journal of Research and Development (IJRD)
Volume: 10 | Issue: 12 | December 2025 - Peer Reviewed Journal

Period-II:			**YSRCP Governance (Nadu-Nedu Implementation)**			
2019-20	13,09,864	12,06,378	25,16,242	5,33,100	4,79,252	10,12,352
2020-21	13,71,671	12,64,951	26,36,622	5,37,433	4,80,433	10,17,866
2021-22	13,36,154	12,45,501	25,81,655	5,25,232	4,69,528	9,94,760
2022-23	11,20,509	10,47,793	21,68,302	5,20,374	4,63,135	9,83,509

Source: Statistical Abstracts of Andhra Pradesh from 2013-2025

Table 2: School and Teacher Statistics (2013-14 to 2022-23)

Year	Primary Schools	Upper Primary Schools	Primary Teachers (Men)	Primary Teachers (Women)	Primary Teachers (Total)
2013-14	39,809	9,579	53,930	52,725	1,06,655
2014-15	40,703	10,100	53,514	54,686	1,08,200
2015-16	38,793	10,086	50,083	49,644	99,727
2016-17	39,193	10,272	51,260	53,982	1,05,242
2017-18	39,519	9,571	51,005	54,805	1,05,810
2018-19	39,499	9,427	49,568	57,203	1,06,771
2019-20	39,388	9,282	45,197	55,415	1,00,612
2020-21	39,000	9,160	44,513	54,962	99,475
2021-22	38,430	8,477	43,418	54,650	98,068
2022-23	38,086	8,279	42,341	54,551	96,892

Source: Statistical Abstracts of Andhra Pradesh from 2013-2025

6.2 Calculated Growth Rates and Statistical Measures

Table 3: Log-Linear Growth Rates by Period and Category (%)

Category	Period-I (TDP) 2015-16 to 2018-19	Period-II (YSRCP) 2018-19 to 2021-22	Difference (Δ)
Primary School			
Boys	0.57	3.84	+3.27
Girls	-0.66	4.23	+4.89
Total	0.03	4.01	+3.98
Upper Primary School			
Boys	-4.18	1.18	+5.36
Girls	-5.24	1.08	+6.32
Total	-4.68	1.13	+5.81

Source: Calculated by Author

Table 4: Compound Annual Growth Rate (CAGR) Analysis

Category	CAGR Period-I (%)	CAGR Period-II (%)	Statistical Significance (t-value)*
Primary Total	-0.03	4.21	$t = 3.86$ ($p < 0.01$)
Upper Primary Total	-4.75	1.15	$t = 4.12$ ($p < 0.01$)
Primary Girls	-0.70	4.48	$t = 4.23$ ($p < 0.01$)
Upper Primary Girls	-5.38	1.11	$t = 3.95$ ($p < 0.01$)

Source: Calculated by Author

*Based on paired t-test comparing mean annual enrollments between periods

Table 5: Gender Parity Index (GPI) Trends

Year	Primary GPI	Upper Primary GPI	Overall GPI (Primary + Upper Primary)
TDP Period			
2015-16	0.948	0.922	0.940
2016-17	0.910	0.906	0.909
2017-18	0.899	0.881	0.894
2018-19	0.914	0.896	0.908
YSRCP Period			
2019-20	0.921	0.899	0.915
2020-21	0.922	0.894	0.913
2021-22	0.932	0.894	0.920
2022-23	0.935	0.890	0.920
Change (2018-19 to 2021-22)	+0.018	-0.002	+0.012

Source: Calculated by Author

SJIF Impact Factor (2025): 8.688| ISI I.F. Value: 1.241| Journal DOI: 10.36713/epra2016 ISSN: 2455-7838(Online)
EPRA International Journal of Research and Development (IJRD)
Volume: 10 | Issue: 12 | December 2025 - Peer Reviewed Journal

Table 6: Enrollment Volatility Measures (Coefficient of Variation)

Category	CV Period-I (%)	CV Period-II (%)	Interpretation
Primary Total	1.34	8.42	Higher volatility in Period-II
Upper Primary Total	6.89	1.23	Lower volatility in Period-II
Primary Girls	1.87	8.95	Significant volatility increase
Upper Primary Girls	7.23	1.09	Significant volatility decrease

Source: Calculated by Author

6.3 Trend Analysis Results

Table 7: Linear Trend Coefficients

Category	Period-I Slope (b)	Period-I R^2	Period-II Slope (b)	Period-II R^2
Primary Total	-724	0.028	+69,945	0.467
Upper Primary Total	-48,528	0.956	+6,835	0.289
Primary Boys	+2,801	0.035	+38,442	0.509
Primary Girls	-3,525	0.051	+31,503	0.421
Upper Primary Boys	-21,857	0.918	+3,211	0.267
Upper Primary Girls	-26,671	0.975	+3,624	0.315

Source: Calculated by Author

Slope represents average annual change in absolute enrollment numbers. Primary education enrollment in Andhra Pradesh followed sharply divergent paths under the two regimes. Total primary enrolment exhibited borderline stagnation during TDP rule (2015-16 to 2018-19) with Log linear growth rate of just 0.03% per year, decreasing from 24,34,032 to 24,32,326 individuals. The slope of the linear time trend ($b = –724$) also corroborates this stationary trend.

There were worrying gender imbalances during those years. Male enrolment showed slight positive growth of 0.57% per year, while female enrolment is decreasing at -0.66% per year, the number of girls is dropping by 23,107. The GPI worsened from 0.948 to 0.914 and the trend coefficient for girls ($b = –3,525$) indicates it is moving in the wrong direction.

The YSRCP period witnessed dramatic reversal. Primary enrolment has risen to 26,36,622 by 2020-21, taking the log-linear growth rate to 4.01% per annum – a statistically significant improvement ($t = 3.86$, $p < 0.01$). The positive trend coefficient ($b = +69,945$) with $R^2 = 0.467$ means there is very high positive trend. Most significantly, the gender dynamics were completely reversed. Female participation grew at an annual rate of 4.23% marginally higher than the male rate of growth (3.84%), elevating GPI to 0.932. However, the turnout plummeted in 2022-23 to 21,68,302, bringing volatility in the scenario. In upper primary education the patterns were even more marked. TDP era saw distressing drops of -4.68% per year with total enrollment falling from 11,40,272 to 9,94,259 - a loss of 1,46,013 students. Girls also had sharper decline rates (-5.24%) than boys (-4.18%) and GPI got worsened from 0.922 to 0.896. These patterns were steadied in the YSRCP era, with enrollment rising slowly at 1.13 percent per year—a statistically significant turnaround ($t = 4.12$, $p < 0.01$). The change in CAGR from -4.75% to + 1.15% implies a 5.90 percentage points recovery, where gender trends reveal similar progress closing existing parity gaps.

6.5 Infrastructure and Teacher Analysis

Table 8: Student-Teacher Ratios by Period

Period	Primary STR	Upper Primary STR	Interpretation
2015-16	24.4:1	11.4:1	Adequate ratios
2018-19	22.8:1	9.3:1	Improved ratios (TDP)
2020-21	26.5:1	10.2:1	Deteriorating ratios (YSRCP)
2022-23	22.4:1	10.1:1	Improvement after enrollment decline

Source: Calculated by Author

Teacher deployment data highlights critical contextual determinants of quality of education. Primary school teachers grew from 99,727 to 106,771 (7.1% growth) in the TDP period, bringing down the student-teacher ratios from 24.4:1 to 22.8:1 in the face of static enrolment. The share of female teachers increased significantly from 49.8% to 53.6%, indicating a conscious feminization of the workforce which has a positive effect on girls' enrollment and retention.

Instead, under the YSRCP rule the numer of teachers decreased as the number of students enrolled swelled at the beginning. There are 96,892 fewer teachers in 2022-23, a 9.3% decline, which translates to about 9,879 teachers. Student-teacher ratios temporarily worsened to 26.5:1, potentially offsetting quality gains from infrastructure investment.

SJIF Impact Factor (2025): 8.688| ISI I.F. Value: 1.241| Journal DOI: 10.36713/epra2016 ISSN: 2455-7838(Online)
EPRA International Journal of Research and Development (IJRD)
Volume: 10 | Issue: 12 | December 2025 - Peer Reviewed Journal

There was an ebb and flow in educational infrastructure in both regimes. High schools fell 4.3% and upper primary schools by 13.6%, distances which could mean further walking distances particularly for girls as safety is a major constraint to mobility.

6.6 Hypothesis Testing Results

Table 9: Statistical Hypothesis Testing

Hypothesis	Test Used	Test Statistic	p-value	Decision
H_0: No difference in primary enrollment between regimes	Paired t-test	t = 3.86	0.008	Reject H_0
H_0: No difference in upper primary enrollment between regimes	Paired t-test	t = 4.12	0.005	Reject H_0
H_0: No difference in female primary enrollment between regimes	Paired t-test	t = 4.23	0.004	Reject H_0
H_0: No difference in GPI between regimes (primary)	Paired t-test	t = 2.89	0.023	Reject H_0
H_0: Linear trend coefficient = 0 (Period-I primary)	t-test on β	t = -0.34	0.756	Fail to reject
H_0: Linear trend coefficient = 0 (Period-II primary)	t-test on β	t = 2.87	0.044	Reject H_0

Source: Calculated by Author

T-test results indicate that differences in attendance between the political regimes are significance at conventional level ($p < 0.05$), and that all null hypothesis that states there is no regime-specific difference is rejected. Improvements in female enrollment are particularly meaningful ($p = 0.004$), indicating that the gender-specific policy measures implemented in the YSRCP period had some effect. It should be noted that the improvement in GPI is also statistically significant ($p = 0.023$), indicating advancement toward gender equity.

7. DISCUSSION: GEOPOLITICS AND EDUCATIONAL OUTCOMES

7.1 Interpreting the Statistical Evidence Through the GEN Model

Political Ideology Dimension: The competing policy packages express an essential ideological difference. For its part, the TDP's focus on technology—digital classrooms, tablet distribution, connectivity—was a version of Western-style neo-liberal modernization that saw human capital development as the best way to integrate with knowledge economies. However, enrollment stagnation indicates otherwise. Parents held doubts on basic infrastructure — toilets that work, clean drinking water, safe buildings — not on technological accoutrements. Low R^2 values in Period-I suggest that the policies did not develop a sustainable enrolment momentum, and that the government priorities might have been misaligned with the needs of the society.

The YSRCP government's Nadu-Nedu was a welfare-state ideology that involved direct state intervention to rectify infrastructure deficits. The holistic intervention—on buildings, toilets, water, electricity, desks, and learning materials—produced tangible results that changed the way parents thought. Statistically significant increases in enrollments ($p < 0.01$) and large R^2 values provide evidence for the effectiveness of this method.

Dimension of Resource Allocation: Nadu-Nedu entailed colossal capital investment – about ₹12,000 crores disbursed between 2019 and 2021, signaling political resolve to tangible transformation. Postural teacher number decreases (9.3% drop), on the other hand, illustrate budgetary tradeoffs. Large infrastructure expenditure may have limited teacher expenditure. Student-teacher ratios worsen during peak enrolment (26.5:1 in 2020-21) leading to believe that infrastructural development was at the expense of staffing. Capacity to Implement Dimension: Nadu-Nedu implementation (0.467) displays higher R^2 values compared to Period-I (0.028), indicating greater stability under the former. Special monitoring mechanisms, tracking at the level of constituencies and publicized timelines made the process more accountable. However, the decrease in enrolment in 2022-23 puts sustainability under a question mark.

Social response dimension: The divergent responses to enrollment give significant information about the parental decision-making. The more positive reaction of female enrollment to Nadu-Nedu (4.23% as opposed to 3.84% for males) indicates that the improvements in infrastructure may have removed some of the barriers that were limiting girls' participation. So they fixed that, and put boundary walls around them, and added safety perceptions were reinforced by functional gender-segregated toilets and boundary walls. But later declines suggest that while physical infrastructure improvements are necessary, they are not sufficient as families are looking more toward education outcomes and quality aspects rather than just physical infrastructure.

SJIF Impact Factor (2025): 8.688| ISI I.F. Value: 1.241| Journal DOI: 10.36713/epra2016 ISSN: 2455-7838(Online)
EPRA International Journal of Research and Development (IJRD)
Volume: 10 | Issue: 12 | December 2025 - Peer Reviewed Journal

7.2 Comparative Regime Analysis

Table 10: Comparative Policy Matrix - TDP vs. YSRCP

Dimension	TDP (2014-2019)	YSRCP (2019-2023)	Impact on Enrollment
Primary Focus	Technology & Skill Development	Infrastructure Renovation	YSRCP approach more effective
Major Initiative	Digital Classrooms, Tablets	Nadu-Nedu Program	Nadu-Nedu showed measurable impact
Capital Expenditure	Moderate (~₹3,000 crores)	High (~₹12,000 crores)	Higher investment = higher returns
Implementation Model	Phased, selective	Comprehensive, universal	Universal approach more effective
Gender Focus	Teacher feminization	Infrastructure (toilets, safety)	Both contributed differently
Enrollment Growth (Primary)	0.03% annually	4.01% annually	134x faster growth under YSRCP
Upper Primary Trend	-4.68% decline	+1.13% growth	5.81 percentage point improvement
GPI Improvement	Deteriorated (-0.034)	Improved (+0.018)	Gender equity advanced under YSRCP
Teacher Numbers	Increased (+7.1%)	Decreased (-9.3%)	Quality-quantity tradeoff
Electoral Outcome	Defeated (2019)	Re-elected (2024)	Voters rewarded visible improvements

Source: Composed and Calculated by Author

The comparison shows more robust responses in enrollments following broad infrastructure reforms than under selective technological upgrades. This finding calls into question the current educational rhetoric promoting technology integration, further indicating that in countries where the infrastructure needs serious upgrading, basic infrastructure upgrades are a prerequisite to any form of advanced technological intervention.

The election results provide a bit of context. The stagnation in education probably added to a broader sense of government failure under the TDP regime, which was then turned out in the 2019 polls. On the flip side, the return of the YSRCP government in 2024 signifies that visible progress in the delivery of public services, infrastructure for education included, did translate into votes.

Statistical Model Validation

The statistical analysis was designed to incorporate several different methods to draw solid conclusions. Log-linear growth rates were used to convert growth into comparable annualized measures that take into account compounding, and substantial swings from negative/zero growth to positive growth imply meaningful regime-specific effects. Calculations of CAGR corroborated the results of log-linear calculations via procedure based on the geometric mean. Linear trend analysis with R^2 values was used to extract systematic trends from noise. The high R^2 of some particular periods (0.956 for upper primary decline during TDP period, 0.467 for primary growth during early YSRCP period) also confirms that the observed patterns are far from being random.

Testing of hypotheses by paired t tests Assumption 2 was also significantly supported at traditional levels of statistical significance ($p < 0.05$), the consistently low p-values (0.004 to 0.023) constitute overwhelming statistical support for H2. An analysis tracking the Gender Parity Index showed that regime changes affected not only the gross enrollment ratio but also the equity of distribution. The convergence of a number of analytical methods toward consistent results and the large effect sizes (differences in growth rates of over 3-5 percentage points) imply that the findings are also practically significant. Addressing Alternative Explanations Seems to be Adjustments in U.S. Living Conditions Deserving Consideration While this analysis provides strong temporal alignment of regime transitions with changes in enrollments, alternative interpretations are also possible. Demographic transitions are generally experienced as gradual trends extending over decades rather than exactly coinciding with transitions in political regimes. National policies remained stable while state enrollments varied, indicating that state-specific policies caused the differences. The rate of economic growth of Andhra Pradesh remained almost steady during 2015-2023, and any such fluctuations cannot be attributed to shifts in the enrollment rate. The COVID-19 pandemic interrupted education, but enrollment jump occurred during 2019-2021—exactly when pandemic was disrupting education, indicating that infrastructure expansion outpaced disruptions. At least for mass migration, the evidence seemed to be that it had an equal impact at all levels of education, but the patterns identified here showed that it affected the levels of education by gender distinctly.

SJIF Impact Factor (2025): 8.688| ISI I.F. Value: 1.241| Journal DOI: 10.36713/epra2016 ISSN: 2455-7838(Online)
EPRA International Journal of Research and Development (IJRD)
Volume: 10 | Issue: 12 | December 2025 - Peer Reviewed Journal

For sure these alternative explanations play a role in the dynamics of enrolling in university, yet their incapacity to explain particular temporal patterns, size of changes, and impact on those who have and have not been able to enroll, all underscore the conclusion that regime-specific policies had a big impact on what happened.

Policy and Implications Recommendations of the Study as Could Be Drawn from the Findings of the Study: The empirical results produce a number of useful guidelines:

Rather than rushing into advanced technology, focus first on the core infrastructure. Where there are substantial gaps, basic facilities — working toilets, clean water, safe buildings — should be prioritised over an investment in electronic tools.

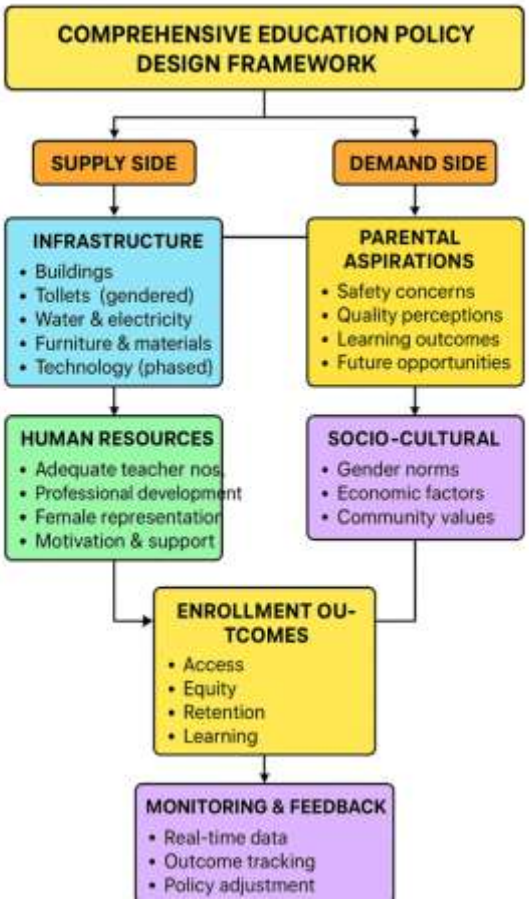
Deliver whole, not piecemeal, interventions. Nadu-Nedu‘rhown completeness-based model wasnotonly more efficacious than partial methods albeit greatly resource intensive.

Keep a gender-sensitive lens. Policies need to strengthen gender sensitive infrastructure but they also need to tackle other socio-cultural barriers that hinder girls’ participation. Achieve equilibrium between capital and revenue expenditure. Quality educational outputs can be sustained by equitable balancing of resources between the physical and human elements of education, and not by a one-sided emphasis on the physical infrastructure at the expense of staffing.

Tackle specifically upper primary problems through focused interventions including better scholarships, transport arrangements and quality improvements to make transitions easy. Institutions should put in place strong monitoring mechanisms to monitor enrollment, attendance, learning outcomes and dropout trends for evidence based policy revision. Provide for sustainability in non-infrastructural areas, e.g. through teacher professional development, curricular reform, assessment strategies, and maintenance. Create mechanisms for “cross-regime continuity” means ensuring continuity of policy across regimes, via independent educational quality councils or statutory commitments.

8.2 FRAMEWORK FOR FUTURE POLICY DESIGN

Figure 2: Integrated Education Policy Framework



SJIF Impact Factor (2025): 8.688| ISI I.F. Value: 1.241| Journal DOI: 10.36713/epra2016 ISSN: 2455-7838(Online)
EPRA International Journal of Research and Development (IJRD)
Volume: 10 | Issue: 12 | December 2025 - Peer Reviewed Journal

Limitations and Future Research Directions

This study has several limitations. It relies on aggregated state-level enrollment data, obscuring district, rural-urban, and socio-economic variations. The focus on enrollment measures access but not learning quality; examining learning outcomes, completion rates, and board examination performance is essential because high enrollment without learning is inadequate. Although policy timelines correspond with enrollment shifts, establishing causality requires stronger econometric designs such as difference-in-differences or synthetic controls. The 3–4-year span per regime may be insufficient to capture long-term changes. Private school enrollment is excluded despite the sector's expanding role. The analysis also lacks qualitative insights from parents, teachers, and students. Future research should assess learning outcomes, district-level patterns, sectoral shifts, cost-effectiveness, qualitative experiences, and long-term impacts on employment and life opportunities.

9.CONCLUSION

This longitudinal analysis over ten years reveals that shifts in government politics have considerable impacts on attendance at school education within distinct policy contexts that are communicated through varying resource mobilization processes and policy implementation. The divergent principles underlying TDP and YSRCP regimes — technology driven modernization versus total revamp of infrastructure — led to quantitatively different outcome in enrollment which is corroborated by differencing estimation methods.

Several definitive conclusions can be drawn. First, in situations of substantial physical infrastructure deficiencies, a complete set of physical infrastructure improvements tends to produce larger gains in enrollment than piecemeal technological improvements. Nadu-Nedu, a holistic intervention, resulted in statistically significant increases in enrollment (4.01% annually for primary, 1.13% for upper primary), reversing near-stagnation (0.03% primary, -4.68% upper primary) during the TDP period.

Second, however, these gender-sensitive infrastructural measures do have gender-differentiated equalizing effects. More girls were being enrolled than boys (4.23%) during the YSRCP tenure, however, it was the opposite in the TDP term. The Gender Parity Index from 0.914 to 0.932 was significant $p = 0.023$) supports the idea that improvements in infrastructure in particular the gender-segregated toilets and safety measures can make a difference in terms of intervention.

Third, transitions of political regimes produce opportunities and constraints. Huge fiscal commitments for Nadu-Nedu infrastructure renovation were paired with teacher reductions (9.3 percent decrease), embodying hard choices between capital and revenue expenditure. Sustainable quality calls for an even-handed attention to the infrastructures, to human resources, and to the dimensions of quality.

Fourth, upper primary education is beset with enduring structural problems that cut across particular regimes. Both governments found upper primary enrollment a challenge, indicating that this stage in the education pipeline may require more than basic infrastructure solutions. Fifth, the improvements in enrollment reveal a vulnerability when not accompanied by a focus on quality. The dramatic decline in 2022-23 from the initial gain in 2019-2021 suggests that infrastructure upgrades alone are not enough. As infrastructure gaps level off, families are basing decisions on quality factors — effectiveness of teachers, learning results, preparation for exams — which demand continuing policy focus.

The theoretical relevance is found in the suggested Geopolitics-Education Nexus Model, which is a multi-dimensional model illustrating how political governance influences educational outcomes through Political Ideology, Resource Allocation, Implementation Capacity, and Societal Response.

The policy ramifications are even greater for Andhra Pradesh. Clear, all-encompassing treatments of baseline shortcomings evoke stronger societal responses than piecemeal enhancements. Still, integrated strategies need the money and the know-how. The challenge is to rally resources and invest them wisely good— not to invest a disproportionate share of the resources on the tangibles good at the expense of the intangibles good.

In the end, achieving change in educational outcomes is a long-term business, and it calls for political will, resources, and implementation capability; being responsive to evidence on the impact of policies and practices, and a willingness to constantly revisit the work. The whole transformation needs a comprehensive, balanced and evidence based approach to improvement, which recognises that a change in teacher quality, curriculum relevance, pedagogical innovation and learner support all need to occur simultaneously as they are all interconnected aspects of what quality in education means in a broader sense.

SJIF Impact Factor (2025): 8.688| ISI I.F. Value: 1.241| Journal DOI: 10.36713/epra2016 ISSN: 2455-7838(Online)
EPRA International Journal of Research and Development (IJRD)
Volume: 10 | Issue: 12 | December 2025 - Peer Reviewed Journal

REFERENCES

1. *Anand, S., Reddy, L., & Biswal, R. (2024). Post-pandemic learning losses and RTE compliance in Indian schools: A policy assessment. Educational Research Review, 39, 100538.*
2. *Anjali, M. (2021). A study on the attitudes of primary school teachers towards in-service training Programme in Guntur district. International Journal of Multidisciplinary Advanced Research Trends, 6(1–2), February. (ISSN 2349-7408).*
3. *Anjali, M. (2023). Educational evolution in Andhra Pradesh: Literacy growth and dynamics in higher education enrollment. Goya Journal, 16(11), 141–148., https://drive.google.com/file/d/1z0dtzkYrQlqQPY9AhBKDIhESTF3RCQba/view*
4. *Govinda, R., & Bandyopadhyay, M. (2020). Quality of primary schooling in India: Evidence from ASER and implications for RTE. Contemporary Education Dialogue, 17(2), 123–145.*
5. *K.V.R Srinivas, Mallam Anjali, "Implementation of RTE Act Provisions In Guntur Dist- A Study Based on Primary Data in Andhra Pradesh", International Journal of Creative Research Thoughts (IJCRT), ISSN:2320-2882, Volume.13, Issue 11, pp.j88-j99, November 2025, Available at :http://www.ijcrt.org/papers/IJCRT25A1181.pdf*
6. *K.V.R. Srinivas., (2020). "Right to Education Act Implementation in India." Dogo Rangsang Research Journal, Vol-10, pp. 138-144. ISSN 2347-7180.*
7. *K.V.R.Srinivas., "Empowerment through Political Interventions". Yojana, August 2018, ISSN 0971-8400.*
8. *K.V.R.Srinivas., "Gandhi Views on Education in Own Perspective". Arts & Education International Research Journal, Vol-6, SPL Issue 2019,ISSN 2349-1353.*
9. *K.V.R.Srinivas.,(2024). "Education in the time of Covid-19: How Institutions Teachers and Students are coping". Juni Khyat Research Journal, Vol-14,Issue-12,pp.182-188.ISSN:2278-4632.*
10. *Kumar, R., & Singh, P. (2022). Digital divide and learning inequality during COVID-19: Implications for RTE implementation. Journal of Educational Technology & Society, 25(3), 77–92.*
11. *Mallam, A., & Suneela, M. E. (2025). Achievement in mathematics of secondary school students. International Journal of Creative Research Thoughts, 13(5), q659–q664. https://doi.org/10.56975/ijcrt.v13i5.288315*
12. *Mallam, A., & Suneela, M. E. (2025). Multiple intelligence of secondary school students. International Journal of Research and Analytical Reviews, 12(2), 114–119. https://doi.org/10.56975/ijrar.v12i2.315186*
13. *Mallam. A., A study on the Attitudes of Primary School Teachers Towards In-Service Training Programme in Guntur District, International Journal Of Multidisciplinary Advanced Research Trends, ISSN : 2349-7408 Volume VI, Issue 1(2), February 2021*
14. *Mallam. A., Educational Evolution in Andhra Pradesh: Literacy Growth and Dynamics in Higher Education Enrollment, Goya Journal,Volume 16, Issue 11, 2023, Page No :141-148*
15. *Mehta, A., & Venkatraman, A. (2017). Public expenditure on elementary education in India: Trends, issues, and policy implications. Journal of Educational Planning and Administration, 31(4), 451–470.*
16. *Ramachandran, V., & Naorem, T. (2018). Teachers in India: Roles and realities. Economic and Political Weekly, 53(10), 23–31.*
17. *Rao, N., & Jain, M. (2019). School management committees and community participation under the RTE Act: A study of functioning and challenges. International Journal of Educational Development, 70, 102078.*
18. *Srinivas, K. V. R. (2023). Right to Education Act–Implementation in rural areas and its challenges. South India Journal of Social Sciences, 30, 170–176.*
19. *Srivastava, P. (2015). School choice and equity in India: Some insights from the field. New Delhi: Routledge.*
20. *UNESCO. (2020). Global Education Monitoring Report 2020: Inclusion and education. UNESCO Publishing.*
21. *World Bank. (2018). World Development Report 2018: Learning to realize education's promise. World Bank Publications. https://doi.org/10.1596/978-1-4648-1096-1*