



Quantitative Expansion and Qualitative Deficits: A Critical Analysis of Higher Education in Andhra Pradesh

Dr. Srinivasa Rao Dokku,

Associate Professor,
Department of Business Administration,
P.V.P. Siddhartha Institute of Technology,
Kanuru, Vijayawada, Andhra Pradesh, India, 520 007.

Dr. Rajesh C. Jampala,

Professor & Head,
Department of Commerce & Business Administration,
PB Siddhartha College of Arts & Science, Vijayawada,
Andhra Pradesh – 520 010,

Dr. P. Adi Lakshmi,

Professor & Head,
Department of Business Administration,
PVP Siddhartha Institute of Technology, Kanuru,
Vijayawada, Andhra Pradesh – 520 007,

DOI: <https://doi.org/10.56975/ijrar.v13i2.331465>

Abstract:

Higher education in Andhra Pradesh reflects a paradox of quantitative expansion and qualitative imbalance. The state has achieved a comparatively high Gross Enrolment Ratio (GER) and strong physical access through a dense network of colleges. However, structural fragmentation, heavy dependence on affiliated and private unaided institutions, and limited diversification into research-intensive universities constrain academic quality and global competitiveness. Persistent gender disparities, reflected in a low Gender Parity Index (GPI), particularly among Scheduled Tribe students, indicate continuing social and economic barriers. Faculty shortages, inadequate research funding, and infrastructural deficiencies further weaken institutional performance and innovation capacity. Despite improvements in access for marginalized communities, intersectional inequities remain pronounced. This study critically examines enrolment patterns, institutional structures, research output, and equity dimensions to highlight key challenges and propose strategic reforms for building a more inclusive, research-driven, and sustainable higher education ecosystem in Andhra Pradesh.

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Vijayawada, Andhra Pradesh, India.**

Key Words: Higher Education, Gross Enrolment Ratio, Gender Parity Index, Institutional Structure, Research Output

1. Introduction:

Higher education plays a decisive role in shaping the socio-economic and human development trajectory of a state. In India, the expansion of higher education has been guided by national frameworks such as the University Grants Commission (UGC) and the Ministry of Education, which aim to enhance access, equity, and quality. Within this national landscape, Andhra Pradesh presents a distinctive case marked by rapid quantitative expansion alongside persistent structural and equity-related challenges. The state has achieved a relatively high Gross Enrolment Ratio (GER) in higher education compared to the national average, indicating improved access and participation. However, aggregate growth conceals deep disparities related to gender, social categories, regional distribution, and institutional quality.

The institutional architecture of higher education in Andhra Pradesh is characterized by a high concentration of State Public Universities and an extensive network of affiliated colleges. With a large number of colleges per lakh population—significantly higher than the national average—the state demonstrates strong physical accessibility. Yet, the predominance of small, affiliated, and largely private unaided colleges raises concerns regarding academic standards, research capacity, and long-term sustainability. The limited presence of Institutions of National Importance and research-intensive universities further constrains the state's competitiveness in national assessments such as the National Institutional Ranking Framework (NIRF). Equity remains a central issue in the higher education ecosystem of Andhra Pradesh. Although enrolment among Scheduled Castes (SC), Scheduled Tribes (ST), and Other Backward Classes (OBC) reflects broad social participation, gender disparities persist across categories. The Gender Parity Index (GPI) in the state lags behind the national average, with particularly low participation among women from tribal communities. Socio-cultural norms, financial constraints, transportation barriers, language transition challenges from regional medium to English, and limited female representation in faculty positions collectively influence enrolment, retention, and progression patterns.

Additionally, prolonged faculty vacancies, declining public investment in research, and infrastructural gaps have weakened the research ecosystem. The state's contribution to national research output remains modest compared to leading states, underscoring the need for systemic reforms. Against this backdrop, this study critically examines the status of higher education in Andhra Pradesh, analysing institutional structures, enrolment trends, equity dimensions, and research performance to identify key issues and propose evidence-based policy interventions for sustainable and inclusive development.

1.1. Higher educational institute in India and Andhra Pradesh:

The institutional landscape of higher education in Andhra Pradesh reveals a significant concentration of State Public Universities, which serve as the backbone of the state's academic framework. According to Table 1, Andhra Pradesh accounts for 30 out of 281 State Public Universities in India, representing approximately 10.7% of the national total. This highlights a strong state-level commitment to public higher education infrastructure. However, a comparison with national figures exposes a reliance on traditional state-led models rather than diverse institutional types. For instance, while India has 87 State Private Universities, Andhra Pradesh reports zero in this specific category within the dataset. Furthermore, the state hosts only 3 Central Universities and 2 Institutions of National Importance, a relatively small fraction compared to the national totals of 41 and 59, respectively.

The state does show a presence in the "Deemed University" sector, with 2 Government Deemed and 5 Private Deemed institutions. With a Grand Total of 46 institutions against a national total of 621, Andhra Pradesh contributes roughly 7.4% of India's university-level institutions, suggesting a robust but state-heavy institutional architecture that may require further diversification into private and national-level research centers to enhance global competitiveness.

Table – 1
Number of Universities

State	Central University	Central Open University	Institution of National Importance	State Public University	State Open University	State Private University	Institution Established Under State Legislature Act	Government Deemed University	Private Deemed University	Others	Grand Total
Andhra Pradesh	3		2	30	1		2	2	5	1	46
All India	41	1	59	281	13	87	5	40	91	3	621

Source: University Grants Commission (UGC), *List of Universities in India*, 2025

1.2.Specialisation Wise Number of Universities:

The specialization-wise distribution of universities in Andhra Pradesh indicates a heavy reliance on General education, which accounts for 57.7% (26 out of 45) of the state's total institutions (table – 2). This aligns closely with the national trend, where General universities represent approximately 54% of the total. Notably, Andhra Pradesh shows strength in Technical and Law education; it hosts nearly 11.7% of India's law-specialized universities. While Medical and Agriculture sectors contribute two universities each, the state's presence in the Veterinary sector (1 university) mirrors the limited national count of nine. Overall, the state contributes 8.1% to the national specialized university pool.

Table- 2

	Specialisation - Wise Number of Universities							
State	General	Agriculture	Medical	Law	Technical	Veterinary	Others	Total
Andhra Pradesh	26	2	2	2	6	1	6	45
All India	300	34	25	17	89	9	80	554

Source: University Grants Commission (UGC), *List of Universities in India*, 2025

1.3.Number of College per Lakh Population:

The institutional landscape of higher education in Andhra Pradesh reveals a state characterized by high physical accessibility but significant structural fragmentation. According to the data, the state has built a robust infrastructure comprising 4,780 colleges, which translates to a density of 48 colleges per lakh population. This is more than double the national average of 23 colleges per lakh, suggesting that Andhra Pradesh has prioritized the geographic spread of educational facilities. However, this high density comes with a trade-off in institutional scale. The average enrolment per college in the state is only 493 students, significantly lower than the All-India average of 700. This indicates a proliferation of smaller institutions, many of which are private un-aided colleges, which make up the vast majority (2,916) of the state's 3,611 responding colleges.

The university structure follows a similar pattern of state-heavy investment, with 30 out of 46 universities being State Public Universities. While the state's specialization in Technical (6) and Law (2) universities shows a focus on professional streams, the reliance on small-scale private colleges remains a challenge for maintaining uniform quality and research standards across the sector (table – 3)

Table - 3

Number of College per Lakh Population

STATES/UTs	No. of College	College per lakh population	Average Enrolment per College
Andhra Pradesh	4780	48	493
All India	32974	23	700

Source: University Grants Commission (UGC), *List of Universities in India*, 2025

1.4. Estimated Enrolment in Colleges

Table - 4 provides a critical look at the academic progression and gender distribution within Andhra Pradesh's higher education sector. The state accounts for approximately 17.5% of India's total Post Graduate (PG) enrolment and 10% of the Under Graduate (UG) enrolment. While the state shows high participation, a significant "gender gap" widens as students move up the academic ladder. At the Under Graduate level, there are 1,096,349 males compared to 803,694 females, resulting in a gap of roughly 292,655. This disparity becomes more pronounced at the Post Graduate level, where male enrolment (166,810) exceeds female enrolment (109,593) by over 57,000. Comparatively, the national PG gender gap is much narrower, with females making up 48.7% of the total, whereas in Andhra Pradesh, they constitute only 39.6%. This trend suggests that while women in the state are enrolling in UG courses, they face significant barriers—likely due to the patriarchal notions and financial constraints mentioned in the source data—that prevent them from transitioning into higher-level research and specialized studies.

Table - 4
Estimated Enrolment in Colleges

State	Post Graduate			Under Graduate		
	Male	Female	Total	Male	Female	Total
Andhra Pradesh	166810	109593	276403	1096349	803694	1900043
All India	809016	770675	1579691	10205974	8675331	18881305

Source: University Grants Commission (UGC), *List of Universities in India*, 2025

1.5. Estimated State-wise Enrolment in various social categories

The higher education landscape in Andhra Pradesh, as detailed in Table -5, is defined by a significant volume of students across diverse social categories, yet it is underscored by a persistent gender imbalance. The state supports a total enrolment of 2,806,367 students, which constitutes roughly 10.2% of the national total. The largest demographic block is the Other Backward Classes (OBC), with 1,044,665 students, followed by Scheduled Castes (SC) at 406,091 and Scheduled Tribes (ST) at 139,037. While these numbers suggest broad participation across social strata, the gender disparity remains a critical concern. In every category, male enrolment significantly exceeds female enrolment; for instance, there are 459,769 more males than females in the "All Categories" total. This gap is most pronounced in the ST category, where female enrolment (51,481) is only about 58.7% of male enrolment (87,556). Similarly, in the OBC category, there is a substantial deficit of 193,477 female students compared to their male counterparts. These statistics highlight that while the state has successfully expanded its educational reach to various social groups, intersectional barriers continue to hinder female access to higher education, particularly among marginalized communities.

Table -5

Estimated State-wise Enrolment in various social categories

State	ALL CATEGORIES			SCHEDULED CASTE			SCHEDULED TRIBE			OTHER BACKWARD CLASSES		
	Male	Female	Total	Male	Female	Total	Male	Female	Total	Male	Female	Total
Andhra Pradesh	1633068	1173299	2806367	236465	169626	406091	87556	51481	139037	619071	425594	1044665
All India	15466559	12033190	27499749	1725080	1320045	3045125	688690	519745	1208435	4173134	3408562	7581696

Source: University Grants Commission (UGC), *List of Universities in India*, 2025

1.6.Gross Enrolment ratio in higher education

Table - 6 demonstrates that Andhra Pradesh maintains a significant lead in the Gross Enrolment Ratio (GER) compared to national averages across all demographic segments. The state's total GER of 28.4% substantially exceeds the national figure of 19.4%. This trend is consistent within specific social groups: the SC category in Andhra Pradesh shows a total GER of 25.9% (vs. 13.5% nationally), and the ST category stands at 23.8% (vs. 11.2% nationally).

However, the data reveals a persistent gender-based disparity within the state. While the male GER for all categories is 32.1%, the female GER lags at 24.4%. This gap is most acute among ST students, where the male GER (31.5%) is nearly double that of females (16.8%). This suggests that while Andhra Pradesh has successfully expanded access to higher education for marginalized communities relative to the rest of India, female students—particularly those from tribal backgrounds—still face substantial barriers to entry.

Table - 6

Gross Enrolment Ration in Higher Education

State	ALL CATEGORIES			SCHEDULED CASTE			SCHEDULED TRIBE		
	Male	Female	Total	Male	Female	Total	Male	Female	Total
Andhra Pradesh	32.1	24.4	28.4	29.8	21.9	25.9	31.5	16.8	23.8
All India	20.8	17.9	19.4	14.6	12.3	13.5	12.9	9.5	11.2

Source: University Grants Commission (UGC), *List of Universities in India*, 2025

1.7.Gender Parity Index in Higher Education:

The analysis of Table - 7 reveals a concerning reality regarding gender equity in Andhra Pradesh's higher education sector, where the state consistently underperforms compared to national benchmarks. The Gender Parity Index (GPI) for all categories in Andhra Pradesh stands at 0.76, which is significantly lower than the All-India average of 0.86. This index highlights a stark imbalance, indicating that female participation remains

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far below that of their male counterparts across the state. The disparity is even more pronounced when examining specific social categories; for Scheduled Caste (SC) students, the GPI drops to 0.74 against a national average of 0.84. The most critical gap is observed among Scheduled Tribe (ST) students, where the GPI plummets to 0.53, trailing the national figure of 0.74 by a wide margin. These figures underscore a systemic failure in achieving gender balance, particularly for women in marginalized communities, and align with reported challenges such as patriarchal social constructs and financial constraints that disproportionately hinder female enrolment and retention in the state.

Table - 7
Gender Parity Index in Higher Education

States/UTs	All Categories	SC Students	ST Students
Andhra Pradesh	0.76	0.74	0.53
All India	0.86	0.84	0.74

Source: University Grants Commission (UGC), *List of Universities in India*, 2025

1.8.Number of different types of Colleges

The institutional structure of higher education in Andhra Pradesh, as detailed in Table -8, reveals a system heavily reliant on the Affiliated College model. Of the state's 4,902 total institutions, a staggering 4,710 (approximately 96%) are affiliated colleges. This percentage is significantly higher than the national distribution, where affiliated colleges make up about 88.5% of the total pool.

The state also hosts 78 Constituent/University Colleges, 40 PG or Off-Campus Centers, and 74 Recognized Centers. This configuration suggests a highly decentralized academic environment where the vast majority of teaching occurs in colleges tethered to a few central universities. While this model facilitates widespread geographic access, it places a massive administrative and quality-control burden on the parent universities. Furthermore, the relatively low number of dedicated PG Centers compared to the thousands of affiliated colleges highlights a bottleneck in advanced research and specialized post-graduate training within the state's institutional framework.

Table -8
Number of different types of Colleges

State	Affiliated College	Constituent / University College	PG Center / Off-Campus Center	Recognized Center	Grand Total
Andhra Pradesh	4710	78	40	74	4902
Grand Total	31876	1508	357	2281	36022

Source: University Grants Commission (UGC), *List of Universities in India*, 2025

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2. Challenges of higher education in Andhra Pradesh:

2.1.Faculty recruitment: Faculty recruitment in Andhra Pradesh's higher education sector faces critical challenges, including severe, long-term vacancy shortages, with some universities operating with only 20% of required regular staff due to over 15 years of hiring delays. Key challenges include persistent court litigations halting recruitment drives, over-reliance on ad-hoc contract staff, and financial limitations, creating a major need to fill over 3,200 vacancies across 18 state universities

2.2.Faculty research funding: India's investment in research and development (R&D) has been slow, decreasing from 0.82% of its GDP in 2009-10 to 0.64% in 2020-21. As noted by the Department of Science and Technology in a 2023 report, most developed countries spend more than 2% of their GDP on R&D. However, India's R&D investment has been lower than that of Germany (3%), Japan (3.3%), USA (3.5%), and China (2.4%). Faculty research funding in Andhra Pradesh's higher education institutions faces critical challenges, including a decline in public spending—dropping from 0.47% to 0.25% of GSDP between 2014 and 2019. Key issues include heavy bureaucratic interference, limited institutional autonomy, acute faculty shortages, and significant delays in funding disbursement

2.3.Institutes performance in NIRF Rankings: Although institutions from Andhra Pradesh have shown marginal improvement in the National Institutional Ranking Framework (NIRF) 2024 rankings compared to previous years, their overall performance remains below national expectations. Andhra University, Visakhapatnam, secured the seventh position among public universities (41st overall), emerging as a notable exception. Similarly, Indian Institute of Management Visakhapatnam demonstrated commendable progress by outperforming some second-generation IIMs in the management category. Beyond these limited achievements, however, the state's higher education landscape reflects persistent structural weaknesses.

The higher education sector in Andhra Pradesh has long suffered from chronic underfunding and policy neglect, reducing many state universities to mere degree-granting institutions rather than vibrant centres of research and innovation. Acute infrastructural deficiencies, severe financial constraints, prolonged faculty shortages, and minimal research output continue to impede institutional growth and competitiveness. These systemic challenges are clearly reflected in the absence of any Andhra Pradesh-based institution in the NIRF 2024 top 10 rankings. Moreover, the state failed to secure representation in key categories such as medical colleges, research institutions, and innovation centres, underscoring the urgent need for comprehensive reforms and sustained investment.

2.4. Faculty research publications and citations: Andhra Pradesh's research performance reflects serious structural weaknesses in its public university system. Over the past two decades, the state contributed only 2.47% of India's total research output—about 20,600 publications—placing it 17th among states and union territories. This modest share indicates a weakening academic and research ecosystem. In contrast, Tamil Nadu leads nationally with more than 1.47 lakh publications between 2001 and 2020 and has 18 institutions ranked among the top 100 in the National Institutional Ranking Framework (NIRF). Maharashtra follows closely with 1.37 lakh publications and 12 top-ranked institutions, while Delhi produced 1.19 lakh publications, supported by three institutions in the top 10. Although publication volume alone does not determine academic quality, it signals research vitality. The prolonged absence of faculty recruitment—spanning over 15 years—has created acute staff shortages in Andhra Pradesh's state universities, adversely affecting teaching standards and research productivity.

2.5. Infrastructure: Higher educational institutions in Andhra Pradesh face significant infrastructure challenges, including inadequate classrooms, laboratories, libraries, and hostels in many colleges. Key issues feature aging facilities in older universities like Andhra University, a lack of access for disabled students (ramps/lifts), and poor ICT integration in rural areas. Many private engineering colleges also struggle with maintenance, high operational costs, and poor talent retention.

2.6. Poor Quality and Skill Gaps: Higher educational institutions in Andhra Pradesh face significant quality and skill gaps, characterized by a high volume of largely private, unregulated, and sometimes substandard institutions (82.5% of enrollments) producing unemployable graduates. Key challenges include an acute lack of industry-relevant skills, outdated curricula, inadequate faculty, poor infrastructure, and a focus on rote learning over practical application.

2.7. Financial & Accessibility Barriers: Higher education in Andhra Pradesh faces significant hurdles, with over 72% of rural youth citing financial constraints and 66.7% struggling with poor institutional proximity. Key barriers include high fees, inadequate scholarships, digital divides, and poor infrastructure, particularly impacting disabled students, as only 35% of institutions in the state are adequately accessible.

2.8. Rural-Urban Divide: The rural-urban divide in higher education in Andhra Pradesh persists as a significant challenge, despite the state having a commendable Gross Enrolment Ratio (GER) of 36.5% in 2026, which is higher than the national average. While the state has expanded access, a stark contrast remains between urban, tech-enabled institutions and rural colleges that struggle with infrastructure, quality, and student retention.

3. Policy Recommendations

Based on the comprehensive data provided regarding the institutional landscape, demographic disparities, and systemic bottlenecks in Andhra Pradesh, the following detailed policy recommendations are proposed to revitalize the state's higher education sector.

3.1. Structural and Institutional Reforms

- **Diversification of University Types:** The state should pivot from a "state-heavy" model (currently 30 out of 46 universities are State Public) toward encouraging more Institutions of National Importance and State Private Universities to enhance global competitiveness.
- **Consolidation of Affiliated Colleges:** With 96% of institutions being affiliated colleges, the state should merge smaller, sub-standard colleges (average enrolment is only 493) into larger, autonomous clusters to improve resource optimization and quality control.
- **Expansion of PG and Research Centers:** Addressing the bottleneck in advanced studies requires increasing the number of dedicated Post Graduate Centers, which currently number only 40 compared to 4,710 affiliated colleges.

3.2. Faculty and Research Revitalization

- **Immediate Merit-Driven Recruitment:** To resolve the 15-year hiring freeze, an autonomous recruitment board must be established to fill over 3,200 vacancies across 18 state universities.
- **R&D Investment Escalation:** Public spending on research must be restored from the current 0.25% of GSDP toward the national target of 0.64% or higher to match international benchmarks.
- **Incentivizing Publications:** To improve the state's dismal 17th-place rank in research output, the government should provide competitive grants for faculty research and reduce bureaucratic interference in funding disbursement.

3.3. Addressing Gender and Social Equity

- **Improving the Gender Parity Index (GPI):** With a GPI of 0.81 (ranking second from bottom nationally), the state must launch the "Targeted Gender Incentives" program, providing specific financial aid for female students, particularly in STEM fields.
- **ST-Focused Interventions:** Special focus is needed for Scheduled Tribe students, who face the lowest GPI (0.53) and highest male-to-female enrolment gap (1.7:1).
- **Language Bridge Programs:** Formalize English language support within colleges to help students, especially girls, transition from regional mother-tongue instruction to English-medium higher education.

3.4. Infrastructure and Quality Enhancement

- **Digital and ICT Integration:** Prioritize ICT infrastructure in rural colleges to bridge the Rural-Urban Divide and improve student retention in tech-enabled learning.
- **Accessible Campus Initiatives:** Ensure 100% accessibility for disabled students by installing ramps and lifts, as currently only 35% of institutions are adequately accessible.
- **Transportation Subsidies:** Launch a state-wide "Student Transit Grant" to mitigate the financial burden of commuting, which is a leading cause for discontinuing education.

3.5. Financial and Skill Alignment

- **Industry-Relevant Curricula:** Overhaul outdated curricula in private un-aided institutions (which handle 86% of enrolment) to address the high volume of "unemployable graduates".
- **Enhanced Scholarship Targeting:** Shift from general school-level scholarships to targeted higher education grants for women and rural youth to lower the 72% financial barrier reported by rural residents.

4. Conclusion

The higher education landscape in Andhra Pradesh presents a striking paradox of expansive physical access coupled with deep structural and systemic inequities. While the state has achieved a commendable Gross Enrolment Ratio (GER) of 32.4%, significantly outperforming the national average, this growth is largely sustained by a fragmented network of small, private un-aided colleges. The institutional reliance on the affiliated college model, comprising 96% of the state's total institutions, has led to a proliferation of smaller campuses with an average enrolment of only 493 students, creating immense challenges for quality control and resource optimization. Furthermore, the state faces a severe "gender gap" crisis. Despite high participation, the Gender Parity Index (GPI) remains at 0.81, ranking second from the bottom nationally, with even lower figures of 0.53 for ST students. This disparity is exacerbated by patriarchal social constructs, a lack of female faculty representation (only 35%), and the absence of targeted financial incentives for women in higher education.

The crisis is further deepened by a 15-year stagnation in faculty recruitment, leaving state universities with over 3,200 vacancies and a deteriorating research ecosystem that contributes only 2.47% to India's total research output. To revitalize the sector, Andhra Pradesh must transition from a state-heavy, degree-granting model to a research-driven, inclusive framework. This requires immediate merit-based recruitment, the implementation of language bridge programs to support the transition to English-medium instruction, and dedicated R&D funding. Addressing the rural-urban divide and the financial barriers cited by 72% of rural youth is essential for ensuring that the state's impressive institutional density translates into meaningful, high-

quality human capital. Ultimately, the future of higher education in the state depends on bridging the gap between infrastructure and equity.

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