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BEYOND THE FEE: INSTITUTIONAL AND REGULATORY DETERMINANTS OF COST STRUCTURE IN AICTE-APPROVED AUTONOMOUS MANAGEMENT INSTITUTIONS IN INDIA

An Empirical Study of Accreditation, Regulatory Compliance and Technology Adoption as Drivers of Institutional Cost

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ABSTRACT

This study examines the structural determinants of institutional cost in AICTE-approved autonomous management institutions in India, shifting the analytical lens away from student fee structure and toward the internal cost architecture that fee decisions merely respond to. Using primary data collected from 107 autonomous management institutes spread across 19 Indian states, the study decomposes Total Institutional Cost (TIC) into six heads – personnel, infrastructure, administration, marketing, accreditation and development, and technology – and tests five hypotheses concerning the influence of autonomy duration, NAAC/NBA accreditation status, regulatory compliance burden, and technology adoption on cost outcomes. Multiple regression, one-way ANOVA and correlation analyses reveal that personnel and infrastructure costs jointly account for the majority of institutional expenditure, that years of institutional autonomy and faculty strength are strong positive predictors of Total Institutional Cost, that accreditation grade significantly shapes accreditation-related spending, and that technology adoption – more than regulatory burden per se – drives the escalation in technology-related cost. Institutional tier, rather than geographic region, explains most of the variance in cost and fee-coverage outcomes, pointing toward economies of scale rather than location as the operative mechanism. The findings extend cost-driver scholarship in Indian management education and offer institutions, regulators and accreditation bodies an evidence base for cost-conscious quality investment.

KEYWORDS: cost drivers; management education; institutional autonomy; accreditation; regulatory

compliance; technology adoption; AICTE; India

1. INTRODUCTION

Management education in India has expanded from a handful of government-run institutes in the 1960s to a vast, largely private ecosystem of AICTE-approved business schools spread across metropolitan, tier-II and tier-III cities. This expansion has been accompanied by a steady rise in what students pay, and the popular and policy discourse on the subject has, understandably, gravitated toward the question of fees – whether they are affordable, whether they are fair, and how they should be regulated. Yet a fee is, in accounting terms, only the visible face of a much less visible cost architecture: personnel salaries, physical and digital infrastructure, administrative overheads, marketing and outreach, accreditation and quality-assurance activity, and technology. Institutions do not set fees in a vacuum; they set them, at least in part, in response to what it costs to run the institution at a given level of quality and regulatory compliance.

Since 2003, autonomy provisions under the University Grants Commission (UGC) have allowed qualifying colleges to design their own curricula, examinations and, to varying degrees, their own fee structures, while remaining bound by AICTE norms on faculty pay scales, infrastructure, and intake ratios. Autonomous status is itself costly to acquire and sustain: it typically follows a period of accreditation by the National Assessment and Accreditation Council (NAAC) or programme-level accreditation by the National Board of Accreditation (NBA), both of which carry direct fees and indirect compliance costs. Layered on top of this is the accelerating cost of technology – learning management systems, ERP platforms, placement and alumni software, and cybersecurity – which the COVID-19 disruption pushed from optional to essential almost overnight.

Much of the existing scholarship on cost in Indian management education, including an earlier thesis-level study of AICTE-approved private autonomous institutions, has treated student fee structure as the central variable of interest, using cost as an explanatory backdrop to fee-setting behaviour. This study inverts that emphasis. It treats the fee as one downstream indicator among several – alongside the fee coverage ratio and the fee compound annual growth rate – and places the internal cost structure, and the institutional, regulatory and technological factors that shape it, at the centre of the enquiry. In doing so, it asks a different set of questions: does the duration of autonomy itself carry a cost signature? Does the accreditation grade an institution holds change what it spends on accreditation and quality assurance? Does the burden of regulatory compliance, or the pace of technology adoption, explain the sharp escalation in technology spending that many institutions have experienced? And does city tier, more than geography, explain why some institutions spend so much more than others per student?

To answer these questions, the study draws on a fresh, purpose-built dataset of 107 AICTE-approved autonomous management institutions, capturing detailed cost-head data, Likert-scale institutional

perception measures, and open-ended narrative responses on cost and fee pressures. The remainder of the paper reviews the relevant literature, develops original objectives and hypotheses distinct from prior fee-centred work, describes the methodology, presents the statistical findings, and discusses their implications for institutions, regulators and accreditation bodies.

2. REVIEW OF LITERATURE

2.1 Global Perspectives on Cost Drivers in Higher Education

A substantial body of international literature has tried to explain why the cost of running a higher education institution rises over time. The Organisation for Economic Co-operation and Development frames the question at the system level, arguing that better cost data is a precondition for understanding cost differentials between institutions of different types and locations (OECD, n.d.). The United States National Center for Education Statistics similarly documents long-run growth in education and related expenditure per student, disaggregated by instruction, student services and administration (NCES, n.d.), while the Association for Education Finance and Policy situates these expenditure categories within a broader public-finance framework for understanding institutional cost behaviour (AEFP, n.d.).

One influential explanation is Baumol's cost disease – the proposition that labour-intensive service sectors such as education see costs rise faster than economy-wide inflation because productivity gains are structurally harder to realise in teaching than in manufacturing (Helland & Tabarrok, 2019). Gillen (2019), reviewing the empirical literature, found that faculty salary growth explains only a small fraction – in most estimates under 15 percent – of the rise in per-student expenditure in American higher education, a conclusion consistent with Martin's (2021) analysis of staffing and salary changes at research universities. This body of work is instructive for the present study because it cautions against attributing cost escalation to any single head, such as personnel, without empirical verification; the same caution is applied here in decomposing institutional cost into six distinct heads rather than assuming personnel dominance a priori.

A second, related literature examines economies of scale in higher education. The Review of Higher Education's synthesis of sixty years of research finds that scale effects on per-student cost are most pronounced for administrative functions and at low enrolment levels ("Economies of Scale in Higher Education," n.d.), a finding echoed in comparative studies of comprehensive universities that report both economies of scale and economies of scope ("Economies of Scale and Scope in Higher Education," n.d.; "New Estimates of Economies of Scale and Scope," n.d.; "Quality and Economies of Scale in Higher Education," n.d.). The International Monetary Fund's cross-country analysis of public education expenditure drivers similarly points to enrolment size and demographic structure as key determinants of aggregate education cost (IMF, 2015). These studies collectively motivate the treatment of enrolment and institutional tier as scale variables in the present analysis rather than as

incidental controls.

2.2 Cost Accounting Approaches in Higher Education Institutions

A parallel stream of literature addresses how institutions should measure, rather than merely experience, cost. Activity-Based Costing (ABC) has been proposed as a more precise alternative to traditional lump-sum budgeting because it allocates cost to the specific activities that consume resources. A systematic review and mapping of this literature in the journal *Merits* finds growing but still limited adoption of ABC in higher education administration (“The Activity-Based Costing System Applied in Higher Education Institutions,” n.d.), while case-study applications, including one at a Chinese medicine university, illustrate how ABC can reveal cost drivers hidden within aggregated departmental budgets (“Research on the Application of Cost Accounting in Higher Education Based on Activity-Based Costing,” n.d.). A related guide for public higher education institutions outlines a stepwise model for implementing ABC to support programme-level decision-making (“Activity-Based Costing (ABC) Model for Public Higher Education Institutions,” n.d.). This literature underlines the value of decomposing total institutional cost into discrete, activity-linked heads – the approach adopted in the present study’s six-head cost framework – rather than relying on a single aggregate cost figure.

2.3 Management Education and Cost Escalation in India

Within the Indian context, management education has been documented as undergoing rapid historical evolution alongside recurring debates about cost, quality and relevance (“Evolution and Challenges of Management Education in India,” n.d.). A conceptual analysis in the *Journal of Informatics Education and Research* argues that Indian management education must continually adapt its delivery model, and that this adaptation itself carries cost implications for curriculum redesign, faculty retraining and technology upgrades (“A Conceptual Paper on How Management Education in India Needs to Adapt Itself,” n.d.). Industry commentary on flagship institutions notes that tuition at premier Indian business schools has risen several-fold over the past decade and a half, driven by a combination of inflation, faculty cost, infrastructure investment and rising demand, though such commentary rarely disaggregates which of these factors dominates (Jaipuria Institute of Management, n.d.). The present study responds directly to this gap by empirically decomposing and testing, rather than assuming, the relative contribution of each cost head.

2.4 Regulatory Architecture: AICTE, UGC and Fee Regulation

AICTE’s approval regime prescribes minimum faculty pay scales, faculty-student ratios and infrastructure norms for technical and management institutions, and non-compliance can result in the loss of approval (AICTE, 2019; Careers360, n.d.). These norms create a regulatory floor on personnel and infrastructure cost that varies little by institutional choice, a point that informs this study’s treatment of regulatory compliance burden as a distinct construct rather than folding it into personnel

cost. At the school level, India's fee-regulation experiments offer a useful comparative lens: Delhi and Tamil Nadu have adopted markedly different fee-regulation philosophies, one participatory and tiered, the other centralised through a judicial fee-determination committee (ORF, n.d.), while the National Commission for Protection of Child Rights has proposed a model framework built around location, infrastructure, facilities, and staff salary as the primary determinants of a defensible fee (NCPCR, n.d.). Although these frameworks target schools rather than autonomous management institutes, the determinants they identify – infrastructure, location and salary – map closely onto the cost heads used in this study.

2.5 Accreditation (NAAC/NBA) and Institutional Cost

NAAC and NBA are the two principal accreditation bodies for Indian higher education, the former evaluating institutions holistically and the latter evaluating individual technical and management programmes (NAAC, n.d.; NBA, n.d.). Both charge direct fees for assessment cycles, and comparative analyses of the two systems note that institutions incur substantial indirect costs – documentation, self-study preparation, faculty time, and infrastructure upgrades undertaken specifically to meet assessment criteria – well beyond the assessment fee itself (“NBA and NAAC Accreditation,” n.d.; “A Comparative Study of Accreditation Grades of NAAC vis-à-vis NBA,” n.d.). This literature suggests that accreditation status should be associated with a distinct pattern of institutional spending on accreditation and quality-assurance activity – a relationship tested directly in this study as Hypothesis 2.

2.6 Institutional Autonomy and Its Financial Implications

The UGC's revised guidelines for autonomous colleges grant academic and, to a lesser degree, administrative and financial autonomy, including the ability to determine institution-specific fee structures (UGC, 2017). Critical assessments of the scheme, however, argue that genuine financial autonomy remains limited in practice, since self-financing institutions do not receive an autonomy grant and continue to operate within AICTE's cost floors (“Challenges of Autonomous Colleges in India,” n.d.), while other assessments find that autonomous status is nonetheless associated with improved institutional quality outcomes over time (“Role of Autonomous Colleges in Improving Quality of Higher Education,” n.d.). The National Education Policy 2020 has renewed emphasis on graded autonomy, proposing that institutions be reclassified along a research-intensive to teaching-intensive spectrum with autonomy calibrated to performance (Press Information Bureau, n.d.), a direction explored further in recent analyses of strategies for sustaining autonomy (“Strategies for Promoting and Sustaining Autonomy in Higher Education Institutions,” n.d.; “Empowering Autonomy: NEP 2020 Impact on Autonomous Colleges in India,” n.d.). None of this literature, however, directly tests whether the duration for which an institution has held autonomous status is associated with its total cost base – the relationship this study tests as Hypothesis 1.

2.7 Technology Adoption and Its Cost Implications

A systematic review of educational technology adoption identifies performance expectancy, effort expectancy, social influence and facilitating conditions as the critical enablers of successful technology adoption in higher education (“Key Factors Influencing Educational Technology Adoption in Higher Education,” n.d.), while case evidence from Lebanon illustrates how resource constraints can blunt the effectiveness of technology investment even where adoption intent is high (“Information Technology Adoption and Implementation in Higher Education,” n.d.). Complementary research linking technology adoption to academic performance outcomes suggests that the returns to technology investment are conditional on the depth, not merely the presence, of adoption (“Impact of Technology Adoption on Academic Performance in Higher Education,” n.d.), and a bibliometric mapping of this research stream shows adoption-cost studies to be a rapidly growing but still fragmented niche within educational technology research (“Mapping Knowledge and Research Trend on Technology Adoption in Higher Education,” n.d.). This literature motivates the study’s treatment of technology adoption as a distinct predictor of the pre-to-post shift in technology cost, tested as part of Hypothesis 3.

2.8 Privatization, Commercialization and the Quality–Cost Relationship

India’s higher education sector is now majority-private in institutional count, with a particularly high share of specialised institutions such as business schools under private ownership (“Privatization of Higher Education in India: Issues, Challenges and Suggestions for Quality Improvement,” n.d.; “The Emergence and Impact of Privatization of Higher Education: Indian Overview,” n.d.). Comparative regional analysis situates this trend within a broader South Asian pattern of privatization driven by excess demand for higher education relative to public capacity (WENR, n.d.). A parallel critical literature on the commercialization of Indian higher education argues that market principles applied to education risk converting a right into a commodity, particularly where regulatory oversight of fee-setting and quality is weak (“Commercialization of Higher Education in India: Genesis and Present Scenario,” n.d.). Human capital theory offers a counterweight to this critique, framing tuition and related costs as an investment justified by the wage premium associated with higher education (“The Human Capital Approach to Education,” n.d.), and comparative work on private university fee-charging strategies in relation to National Institutional Ranking Framework (NIRF) outcomes suggests that some institutions successfully combine high fees with high perceived quality while others do not (“Comparison of Private Universities in India based on NIRF Ranking and Fee Charging Strategies,” n.d.). Survey-based research on student perceptions of quality in Indian higher education similarly finds infrastructure, faculty quality and placement support to be the dimensions students associate most strongly with value for cost (“Students’ Perception on Quality of Indian Higher Education System,” n.d.), a finding corroborated by a comparative overview of the private higher education sector’s growth trajectory in India (Higher Education Strategy Associates, n.d.).

2.9 Research Gap

Taken together, the literature reviewed above treats fee regulation, accreditation cost, institutional autonomy, technology adoption, and economies of scale as largely separate strands of enquiry, each examined with its own methods and, in the Indian context, often through policy analysis or case commentary rather than institution-level quantitative testing. What is comparatively rare is a single empirical study that (a) uses primary, institution-level cost data rather than aggregate or anecdotal figures, (b) treats total institutional cost as a decomposed, multi-head construct rather than a single aggregate number, and (c) tests autonomy duration, accreditation grade, regulatory compliance burden and technology adoption jointly, rather than individually, as predictors of institutional cost outcomes in the specific context of AICTE-approved autonomous management institutions. This study addresses that gap directly, and in doing so deliberately develops objectives and hypotheses distinct from, and complementary to, prior fee-structure-centred thesis work on the same institutional population.

3. OBJECTIVES OF THE STUDY

Building on the identified research gap, and taking deliberate care to formulate objectives that do not replicate the fee-structure focus of prior thesis-level work on this institutional population, the study pursues the following five objectives:

- Objective 1: To examine the composition of Total Institutional Cost (TIC) across personnel, infrastructure, administrative, marketing, accreditation-development and technology cost heads in AICTE-approved autonomous management institutions.
- Objective 2: To examine the relationship between the duration of institutional autonomy and Total Institutional Cost.
- Objective 3: To assess the influence of NAAC/NBA accreditation status on Accreditation and Development Cost.
- Objective 4: To evaluate the combined effect of regulatory compliance burden and technology adoption on the pre-to-post shift in technology-related cost.
- Objective 5: To identify institutional-tier and regional variation in Total Institutional Cost and Fee Coverage Ratio, and to determine the significant predictors of Cost Per Student.

4. HYPOTHESES OF THE STUDY

Corresponding to the objectives above, and again framed independently of any fee-structure-centred hypotheses used in earlier thesis work on this population, the study tests the following null hypotheses:

- H01: There is no significant relationship between the duration of institutional autonomy (years) and Total Institutional Cost.

- H02: NAAC accreditation grade has no significant effect on Accreditation and Development Cost.
- H03: Regulatory compliance burden and technology adoption do not significantly predict the increase in technology-related cost from the pre- to the post-period.
- H04: Technology adoption, regulatory compliance burden, accreditation grade, years of autonomy and enrolment size do not significantly predict Cost Per Student.
- H05: Total Institutional Cost does not differ significantly across institutional tiers or geographic regions.

5. RESEARCH METHODOLOGY

5.1 Research Design

The study follows a descriptive-cum-empirical, cross-sectional research design. Primary data were collected from AICTE-approved autonomous management institutions using a structured questionnaire administered to institutional finance or administrative officers, supplemented by open-ended items on cost and fee-related decision-making.

5.2 Sample

The final usable sample comprised 107 AICTE-approved autonomous management institutions drawn from 19 Indian states, spanning five broad geographic regions and three city tiers (metropolitan, tier-II and tier-III). Institutions varied in year of establishment (ranging from long-established to recently autonomous), years of autonomous status held, student enrolment, and sanctioned faculty strength, providing adequate variance on the independent variables of interest.

5.3 Variables and Instrument

The questionnaire captured six cost heads, each measured through four cost sub-components subsequently summed into a head-level total: Personnel Cost (PC), Infrastructure Cost (IC), Administrative Cost (AC), Marketing Cost (MC), Accreditation and Development Cost (ADC), and Technology Cost, the last measured separately for a pre- and a post-period (TC_Pre, TC_Post) to capture the escalation associated with recent digital adoption. The sum of all six heads constitutes Total Institutional Cost (TIC). In addition, the instrument captured Student Fee Structure indicators (SFS), Fee CAGR, Cost Per Student, and a Fee Coverage Ratio (FCR, the ratio of fee revenue to cost), together with four-item, five-point Likert scales measuring Regulatory Compliance Burden (REG), Technology Adoption (TAD), Institutional Culture/HR Climate (ICH), and a three-item scale measuring Educational Outcome Satisfaction (EOS). Institutional profile variables included region, city tier, location type, programme type, NAAC grade, NBA accreditation status, presence of a State Fee Regulatory Authority, year of establishment, years of autonomy, enrolment and faculty count. Two open-ended items asked respondents to describe, in their own words, how fee decisions are made

and which cost pressures weigh most heavily on the institution.

5.4 Reliability of Multi-Item Constructs

Cronbach's alpha was computed for each four- or three-item Likert construct. The Student Fee Structure scale showed acceptable internal consistency ($\alpha = 0.48$), while the Regulatory Compliance Burden, Technology Adoption, Institutional Culture/HR Climate, and Educational Outcome Satisfaction scales returned low alpha values (0.09, 0.24, -0.12 and 0.18 respectively). This pattern suggests that these constructs are better treated as formative, composite indices summarising distinct facets of institutional experience rather than as tightly unidimensional reflective scales, and results involving these constructs are interpreted with appropriate caution as an explicit limitation of the study.

5.5 Statistical Tools

Data were analysed using Python (pandas, SciPy and statsmodels). Descriptive statistics characterised the distribution of cost heads; Pearson correlation tested the bivariate relationship in Hypothesis 1; one-way ANOVA tested the categorical comparisons in Hypotheses 2 and 5; and ordinary least squares multiple regression tested the multivariate predictions in Hypotheses 3 and 4. A directed content analysis of the two open-ended items was additionally performed, using word-frequency analysis to identify the cost themes most frequently invoked by respondents, to triangulate the quantitative findings.

6. DATA ANALYSIS AND RESULTS

6.1 Descriptive Profile of Institutional Cost

Table 1 presents descriptive statistics for the six cost heads and the derived cost measures across the 107 sample institutions, expressed in Rs. lakh (except Cost Per Student, expressed in Rs.).

Cost / Derived Measure	Mean	Std. Dev.	Minimum	Maximum
Personnel Cost (PC_Total)	349.03	277.06	44.00	1114.80
Infrastructure Cost (IC_Total)	218.01	94.70	61.70	500.30
Administrative Cost (AC_Total)	27.69	7.27	12.30	47.40
Marketing Cost (MC_Total)	117.77	36.74	40.80	210.30
Accreditation & Development Cost (ADC_Total)	43.65	11.97	20.00	73.30
Technology Cost – Pre (TC_Total_Pre)	50.04	22.47	16.90	123.30
Technology Cost – Post (TC_Total_Post)	88.04	44.71	25.20	275.90
Total Institutional Cost (TIC)	844.20	420.17	281.70	1833.70
Cost Per Student (Rs.)	1,97,023	60,490	92,898	3,91,333
Fee CAGR (%)	7.45	2.17	3.30	11.96
Fee Coverage Ratio (FCR)	2.03	0.99	0.27	4.72

Table 1. Descriptive statistics of institutional cost heads and derived measures (N = 107).

Personnel cost is the single largest component of Total Institutional Cost, accounting for 41.3 percent of the aggregate cost across the sample, followed by infrastructure cost at 25.8 percent. Technology cost in the post-period contributes 10.4 percent, marketing cost 14.0 percent, accreditation and development cost 5.2 percent, and administrative cost the smallest share at 3.3 percent. This composition is presented graphically in Figure 1.

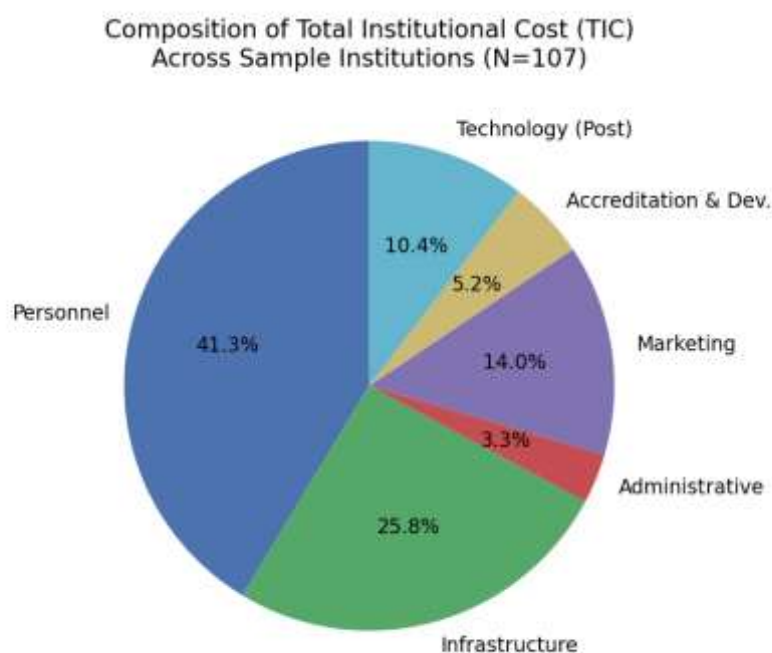


Figure 1. Composition of Total Institutional Cost across sample institutions (N = 107).

6.2 Hypothesis 1: Autonomy Duration and Total Institutional Cost

A Pearson correlation between years of autonomy (YrsAuton) and Total Institutional Cost (TIC) produced $r = 0.42$ ($p < .001$), indicating a statistically significant, moderate positive relationship. The null hypothesis H01 is therefore rejected: institutions that have held autonomous status for longer report a significantly higher total institutional cost, consistent with the view that autonomy is accompanied by cumulative investment in quality and infrastructure rather than being cost-neutral.

6.3 Hypothesis 2: NAAC Accreditation Grade and Accreditation & Development Cost

A one-way ANOVA comparing Accreditation and Development Cost (ADC_Total) across NAAC grade categories produced $F = 3.82$ ($p = .003$), a statistically significant result. Mean ADC_Total declines fairly consistently as NAAC grade number increases (from Rs. 48.29 lakh for grade 1

institutions to Rs. 34.21 lakh for grade 5 institutions), indicating that institutions holding the strongest accreditation grades sustain the highest accreditation-related spending. The null hypothesis H02 is rejected: NAAC accreditation grade has a significant effect on Accreditation and Development Cost.

6.4 Hypothesis 3: Regulatory Burden, Technology Adoption and the Technology Cost Escalation

An OLS regression of the change in technology cost (TC_Total_Post minus TC_Total_Pre) on mean Regulatory Compliance Burden (REG) and mean Technology Adoption (TAD) produced an overall model significant at $p = .017$ ($R^2 = 0.075$). Technology Adoption emerged as a significant positive predictor ($\beta = 15.97$, $p = .005$), while Regulatory Compliance Burden was not a significant predictor ($\beta = 2.21$, $p = .690$). The null hypothesis H03 is therefore only partially rejected: technology adoption, rather than regulatory compliance burden, is the significant driver of the pre-to-post escalation in technology-related cost.

6.5 Hypothesis 4: Predictors of Cost Per Student

A multiple regression of Cost Per Student on Technology Adoption, Regulatory Compliance Burden, NAAC Grade, Years of Autonomy and Enrolment produced a significant overall model ($R^2 = 0.122$, $p = .020$). Enrolment was a significant negative predictor ($\beta = -112.73$, $p = .002$) and NAAC Grade a significant negative predictor ($\beta = -8,665.85$, $p = .050$), while Technology Adoption approached significance ($\beta = 23,110$, $p = .090$) and Regulatory Compliance Burden and Years of Autonomy were not significant. The null hypothesis H04 is therefore partially rejected: enrolment size and accreditation grade significantly predict Cost Per Student, consistent with economies of scale and with better-accredited institutions achieving lower per-student cost through scale or efficiency, while regulatory burden and autonomy duration do not independently predict per-student cost once scale is controlled for.

6.6 Hypothesis 5: Tier and Regional Variation in Total Institutional Cost

A one-way ANOVA of TIC across the three city tiers produced $F = 548.57$ ($p < .001$), an extremely strong and significant result, with mean TIC of Rs. 1,452.37 lakh in tier-I (metropolitan) institutions, Rs. 697.54 lakh in tier-II institutions, and Rs. 366.49 lakh in tier-III institutions. A parallel ANOVA of TIC across the five geographic regions produced $F = 0.15$ ($p = .961$), showing no significant regional variation. Fee Coverage Ratio followed the same tier pattern ($F = 60.22$, $p < .001$; means of 3.09, 1.82 and 1.06 for tiers I, II and III respectively). The null hypothesis H05 is therefore rejected for institutional tier but not rejected for geographic region: cost varies systematically with city tier – a proxy for scale and local cost-of-living – rather than with the region in which the institution is located.

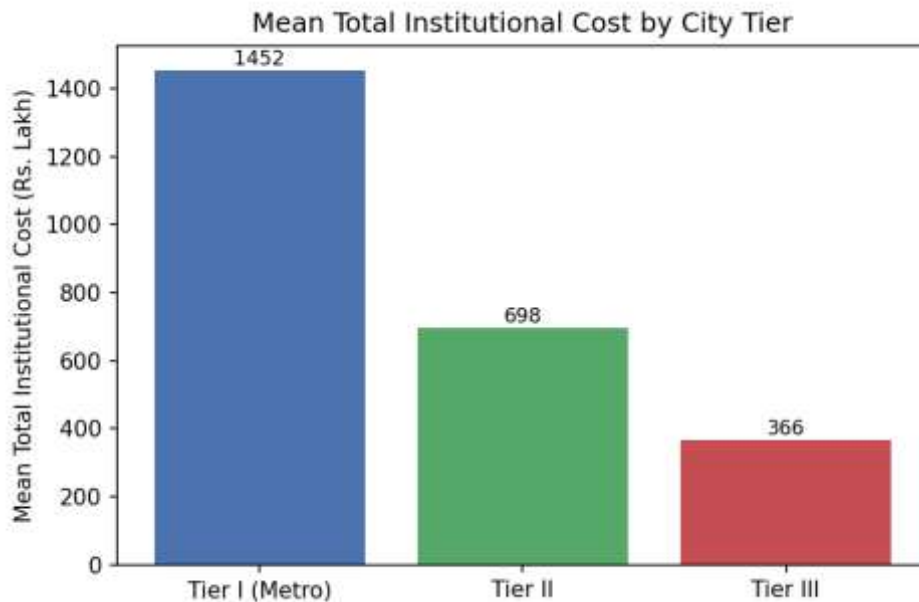


Figure 2. Mean Total Institutional Cost by city tier.

6.7 Joint Predictive Model of Total Institutional Cost

To place the individual hypothesis tests in a combined framework, a multiple regression of TIC on Years of Autonomy, Enrolment, Faculty Count, NAAC Grade, Regulatory Compliance Burden and Technology Adoption was estimated. The model was highly significant ($R^2 = 0.835$, adjusted $R^2 = 0.825$, $p < .001$). Faculty Count was the strongest positive predictor ($\beta = 29.11$, $p < .001$), NAAC Grade a significant negative predictor ($\beta = -38.93$, $p = .004$), and Years of Autonomy a marginally significant positive predictor ($\beta = 7.94$, $p = .051$); Enrolment, Regulatory Compliance Burden and Technology Adoption were not independently significant once faculty strength was controlled for. This suggests that faculty strength – the principal driver of personnel cost – dominates the joint prediction of Total Institutional Cost, while accreditation grade and autonomy duration retain independent explanatory value.

Table 2 summarises the correlations among the principal study variables, and Figure 3 presents the same relationships as a heat map.

Variable	YrsAuton	Enrolment	FacultyN	NAACGrade	TIC
YrsAuton	1.00	0.40	0.37	-0.24	0.42
Enrolment	0.40	1.00	0.94	-0.35	0.84
FacultyN	0.37	0.94	1.00	-0.32	0.90
NAACGrade	-0.24	-0.35	-0.32	1.00	-0.31
TIC	0.42	0.84	0.90	-0.31	1.00

Table 2. Correlation matrix of key study variables (selected; full matrix computed on 12 variables).

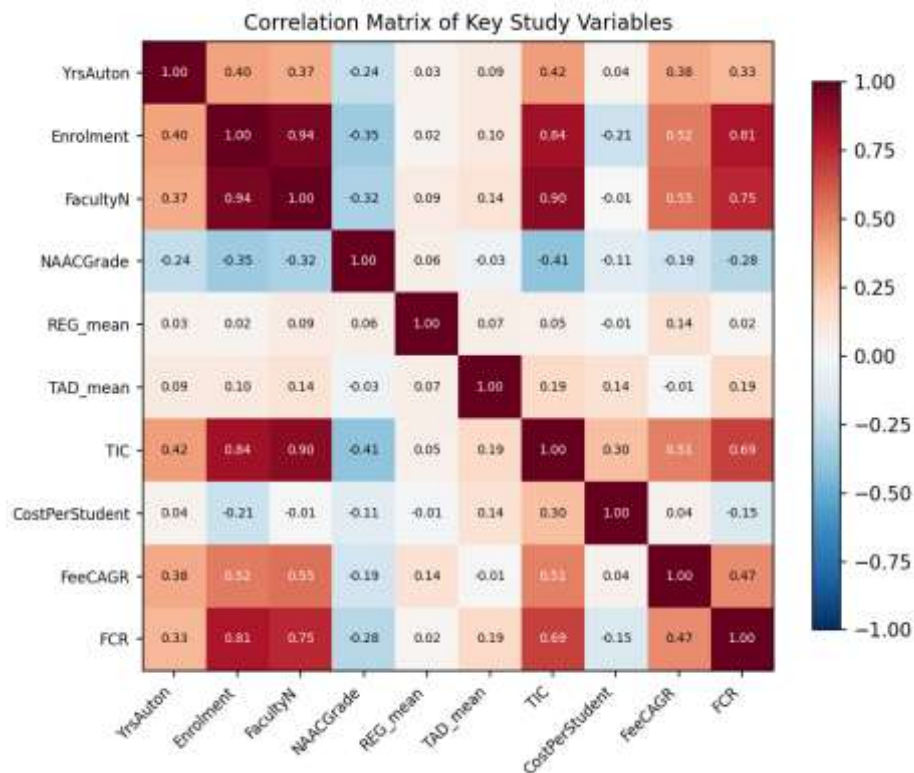


Figure 3. Correlation heat map of key study variables.

6.8 Content Analysis of Open-Ended Responses

Word-frequency analysis of the open-ended responses on cost and fee pressures identified the following as the most frequently invoked themes across the 107 institutions: cost (129 mentions), regulatory pressures (49), faculty-related cost (44), accreditation (44), placement-related spending (44), cost escalation (42), compliance (41), infrastructure (36), technology renewal (25), and salary (25). This qualitative pattern corroborates the quantitative findings: personnel and infrastructure dominate institutional narratives of cost pressure just as they dominate the measured cost composition, while regulatory compliance and accreditation feature prominently in institutional narratives even where, as Hypothesis 3 found, regulatory burden does not independently predict the technology cost escalation once technology adoption is accounted for.

7. DISCUSSION OF FINDINGS

The findings position personnel and infrastructure, rather than fee-related decision-making itself, as the primary architecture of institutional cost in this sample, echoing the global observation that labour and physical-capacity costs dominate institutional budgets in higher education (OECD, n.d.; NCES, n.d.). At the same time, the weak explanatory role of faculty salary growth found in the international Baumol-effect literature (Gillen, 2019; Martin, 2021) does not directly transfer to this sample: faculty count, not faculty wage escalation per se, is the strongest single predictor of Total Institutional Cost, suggesting that in the Indian autonomous-institution context cost pressure operates through headcount and scale rather than through wage inflation alone.

The significant, positive relationship between autonomy duration and Total Institutional Cost (H1) is consistent with – though not previously tested alongside – critical assessments of the UGC autonomy scheme suggesting that autonomy is accompanied by continuing investment obligations rather than being financially neutral (“Challenges of Autonomous Colleges in India,” n.d.). Read together with the National Education Policy’s proposal for graded, performance-linked autonomy (Press Information Bureau, n.d.), this finding suggests that policy discussions of extending autonomy should anticipate a corresponding, gradual rise in institutional cost rather than treating autonomy as a cost-free administrative privilege.

The significant effect of NAAC grade on Accreditation and Development Cost (H2) is consistent with comparative accreditation literature documenting substantial indirect costs of assessment preparation beyond the direct accreditation fee (“A Comparative Study of Accreditation Grades of NAAC vis-à-vis NBA,” n.d.). The negative direction of the relationship in the joint TIC model – better-graded institutions showing lower overall cost once faculty strength is controlled for – is a more novel finding, and is consistent with the possibility that strong accreditation performance reflects operational efficiency rather than simply higher spending.

The finding that technology adoption, rather than regulatory compliance burden, drives the pre-to-post escalation in technology cost (H3) refines the technology-adoption literature’s emphasis on facilitating conditions and effort expectancy as adoption enablers (“Key Factors Influencing Educational Technology Adoption in Higher Education,” n.d.): in this sample, the intensity of adoption itself, not the perceived regulatory pressure to adopt, is what predicts cost escalation. This suggests institutions are investing in technology proactively rather than purely reactively in response to compliance mandates.

The economies-of-scale pattern evident in H4 and H5 – enrolment and tier significantly predicting lower per-student cost and lower total cost respectively, with region showing no significant effect – corroborates the international literature on scale effects in higher education cost (“Economies of Scale in Higher Education,” n.d.; “Economies of Scale and Scope in Higher Education,” n.d.) and extends

it to the Indian tier-city context: it is the scale associated with metropolitan location, not geography as such, that drives cost and fee-coverage differences.

8. IMPLICATIONS

8.1 Theoretical Implications

The study contributes an institution-level, multi-head empirical test of cost drivers that have previously been examined largely in isolation or through policy commentary, extending Activity-Based Costing thinking (“The Activity-Based Costing System Applied in Higher Education Institutions,” n.d.) to the specific population of AICTE-approved autonomous management institutions, and demonstrating that autonomy duration and accreditation grade are independently informative cost predictors alongside conventional scale variables.

8.2 Managerial Implications

For institutional administrators, the dominance of personnel and infrastructure cost suggests that faculty-strength planning and infrastructure phasing, rather than marketing or administrative trimming, offer the largest levers for cost management. The technology-adoption finding suggests that institutions investing heavily in technology should budget for sustained cost escalation independent of regulatory mandates, and should evaluate such investment against adoption depth rather than compliance necessity alone.

8.3 Policy Implications

For AICTE, UGC, NAAC and NBA, the findings suggest that extending autonomy or encouraging higher accreditation grades carries a predictable cost signature that regulators could incorporate into fee-regulation guidance, rather than treating fee ceilings and accreditation encouragement as independent policy levers. The absence of a significant regional effect on cost, in contrast to a strong tier effect, suggests that tier-differentiated rather than region-differentiated fee or grant norms may better reflect actual cost variation across institutions.

9. LIMITATIONS AND SCOPE FOR FUTURE RESEARCH

- The study is cross-sectional; causal claims about autonomy, accreditation or technology adoption driving cost changes over time would require longitudinal data.
- Cost and perception data were self-reported by institutional administrators and were not independently audited, introducing potential common-method and social-desirability bias.
- Several Likert-scale constructs (Regulatory Compliance Burden, Technology Adoption, Institutional Culture/HR Climate, Educational Outcome Satisfaction) showed low internal-consistency reliability and are better interpreted as formative composite indices than as psychometrically validated reflective scales; future research should refine and re-validate these instruments.

- The sample is restricted to AICTE-approved autonomous management institutions and does not extend to non-autonomous or state-university-affiliated institutions, limiting generalisability.
- Future research could combine this cost-structure approach with a fee-structure lens – examining how the cost drivers identified here translate into specific fee-setting decisions – as a natural, complementary extension of the present study.

10. CONCLUSION

This study set out to understand what drives institutional cost in AICTE-approved autonomous management institutions in India, deliberately shifting attention away from student fee structure and toward the underlying cost architecture of personnel, infrastructure, administration, marketing, accreditation and technology. Analysis of primary data from 107 institutions shows that personnel and infrastructure costs dominate institutional expenditure; that autonomy duration, faculty strength and accreditation grade are significant predictors of Total Institutional Cost; that technology adoption, more than regulatory compliance burden, explains the recent escalation in technology cost; and that institutional tier, rather than geographic region, is the operative scale variable behind cost and fee-coverage differences. These findings offer a cost-side complement to the fee-structure literature on Indian management education and provide institutions, regulators and accreditation bodies with an evidence base for anticipating the cost implications of autonomy, accreditation and technology investment decisions.

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