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Strategic management, staff well-being proxies and performance in sustainable higher education development: Archival evidence from Oman

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Abstract: This study examines whether strategic management helps explain the association between employee well-being proxies and an observable performance indicator in Oman's private higher education sector, with attention to sustainable higher education development. Using an archival quantitative secondary-data design, the study draws on official higher education databases, national policy documents, institutional performance records and publicly available reports. Employee well-being is assessed through observable indicators of staff stability, workload-related conditions, professional-development visibility and institutional support mechanisms. Strategic management is represented through planning visibility, quality assurance, governance documentation and performance-monitoring systems. Because comparable institution-level staff data are not publicly available, the study uses a sector-year archival dataset and interprets the results cautiously. Descriptive statistics, correlations, exploratory regression estimates and robustness checks are reported. The empirical dependent variable is annual total-enrolment growth, which is treated as a narrow observable indicator of organisational performance rather than a complete measure of institutional performance. The single-predictor lagged models do not support a direct independent association between employee well-being proxies and total-enrolment growth ($\beta = 2.453$, $p = 0.682$) or between strategic-management capacity and total-enrolment growth ($\beta = -8.824$, $p = 0.189$). The combined model improves explanatory fit, while the interaction model is retained only as an illustrative pattern because the usable sector-year sample is very small. The findings should therefore be read as preliminary sector-level archival evidence, not as institution-level causal proof. The study contributes to sustainable higher education governance by showing that staff-related conditions, planning systems, quality assurance and data visibility should be considered together when assessing institutional resilience and development-oriented reform in Oman.

Keywords: institutional governance; workload conditions; quality assurance; sector-level data; Oman Vision 2040; archival indicators; staff support; sustainable higher education development

1. Introduction

Private higher education in Oman has become an important part of the country's wider development agenda. The Ministry of Higher Education, Research and Innovation reports that Oman has 27 private universities and colleges, with enrolment of approximately 35,000 students [1]. This sector is therefore no longer a marginal supplement to public higher education. It is now part of the national infrastructure for skills development, labour-market readiness and institutional capacity building. This role is reinforced by Oman Vision 2040, which places education, learning, scientific research, national capabilities, governance and institutional performance among the

country's strategic priorities [2]. In this context, private higher education institutions are increasingly expected to show more than enrolment growth or programme expansion. They are expected to demonstrate quality, responsiveness, accountability and alignment with national transformation priorities, as also reflected in Vision 2040 achievement reporting and international tertiary-enrolment indicators [3–5]. This makes private higher education directly relevant to sustainability education and development, because universities and colleges contribute to long-term social progress by developing human capability, employability, institutional resilience and evidence-informed governance [6–8]. Sustainability education also depends on learning environments that build problem-solving capacity, environmental awareness and responsiveness to local development needs [9].

Within this setting, employee well-being deserves closer attention. Academic and administrative staff are central to the daily functioning of higher education institutions. Their stability, workload conditions, professional support and capacity to perform affect teaching continuity, student support, administrative reliability and institutional reputation. When working conditions deteriorate, organisational performance is unlikely to remain unaffected [10,11]. At the same time, the relationship between well-being and performance should not be treated as automatic. Prior research shows that employee well-being becomes organisationally valuable when it is recognised, supported and embedded within effective institutional systems [11]. This point is especially relevant in higher education, where staff experience is shaped not only by individual motivation, but also by workload governance, leadership practice, quality assurance, resource allocation and organisational support.

Strategic management is therefore important to the present study. In higher education, strategy is not simply a written plan or a formal document. It concerns how leadership priorities, resource decisions, monitoring systems, quality processes and institutional goals are aligned over time [12]. This is particularly relevant in Oman, where the Ministry's regulatory and statistical architecture reflects an expectation of systematic performance oversight [1,13]. However, despite the policy importance of private higher education and the growing literature on employee well-being and strategy, the institutional conditions under which staff-related factors become performance-relevant in Oman remain insufficiently examined.

This article makes three contributions. First, it moves the discussion away from a simple well-being-versus-performance argument and offers a more cautious institutional explanation of how the relationship may operate. Second, it grounds the analysis in Oman's private higher education sector rather than applying a generic management model detached from local regulatory and policy realities. Third, it develops an archival secondary-data approach for a field in which direct institution-level staff and performance data are not consistently available in the public domain. This approach is not presented as a substitute for richer institution-level research; rather, it provides a transparent and context-sensitive way to examine publicly observable patterns in a sector where evidence remains fragmented.

1.1. Research questions, objectives, and exploratory hypotheses

This study is guided by three quantitative research questions:

RQ1: To what extent are employee well-being proxies associated with annual total-enrolment growth as an observable sector-level performance indicator in Oman's private higher education sector?

RQ2: To what extent is strategic-management visibility associated with annual total-enrolment growth as an observable sector-level performance indicator in Oman's private higher education sector?

RQ3: To what extent does strategic-management visibility change the association between employee well-being proxies and annual total-enrolment growth at the sector-year level?

To address these questions, the study has four objectives. The first is to operationalise archival indicators for employee well-being proxies, strategic management and organisational performance. The second is to examine the association between employee well-being proxies and organisational performance. The third is to assess the association between strategic management and organisational performance. The fourth is to examine whether the inclusion of strategic management changes the strength or direction of the relationship between employee well-being proxies and organisational performance.

On this basis, the study examines the following exploratory hypotheses, which are treated as directional analytical expectations rather than definitive causal claims:

H1: Employee well-being proxies are associated with annual total-enrolment growth at the sector-year level in Oman's private higher education sector.

H2: Strategic-management visibility is associated with annual total-enrolment growth at the sector-year level in Oman's private higher education sector.

H3: The association between employee well-being proxies and annual total-enrolment growth changes when strategic-management visibility is introduced into the sector-year model.

H4: A combined model including employee well-being proxies and strategic-management visibility provides stronger exploratory fit than models that include either construct separately.

Given the sector-level nature and small size of the available public dataset, these hypotheses are treated as exploratory analytical expectations rather than confirmatory hypotheses. The analysis examines whether the public archival evidence is directionally consistent with the proposed framework. It does not claim institution-level causality, direct staff-level well-being effects or a confirmed mediation process.

2. Literature review

2.1. Employee well-being and organisational performance

The relationship between employee well-being and organisational performance has received wide scholarly attention, but it remains more complex than a simple direct effect. Van de Voorde et al. [11] suggest that well-being and performance may align under a mutual-gains perspective, particularly when well-being is understood in relational and affective terms. However, health-related dimensions may operate differently. This means that employee well-being should not be treated as an automatic driver of performance. Its organisational value depends on the context in which

employees work, the choices made by managers and the institutional systems that support or constrain staff capacity.

This issue is especially important in higher education. Academic and administrative staff work within environments shaped by teaching demand, administrative workload, quality assurance, student expectations, research pressure and institutional accountability. In such settings, well-being is often reflected through overlapping indicators such as stress, burnout, mental health, job satisfaction and occupational conditions [10]. For this reason, well-being in higher education should be understood as a layered institutional condition rather than a narrow personal state. It is shaped by workload, role clarity, leadership, autonomy, relational climate and organisational support. These conditions matter because sustainable institutional performance depends not only on policies and systems, but also on the people who deliver teaching, student support and administrative continuity.

2.2. Strategic management and organisational performance in higher education

Strategic management has become increasingly important in higher education as institutions face stronger accountability requirements, labour-market expectations, financial pressures, competition and quality-assurance demands. In this context, strategy is not limited to formal planning documents. It refers to the way institutions align leadership, resources, governance, quality systems and performance expectations over time [12]. A strategic plan has limited value if it is not connected to institutional decision-making, staff capacity, monitoring systems and measurable outcomes.

This perspective is directly relevant to Oman's private higher education sector. Private HEIs operate within a policy environment shaped by public oversight, open-data reporting and performance-oriented expectations. Ministry documentation emphasises transparency, statistical visibility and institutional monitoring [1,13]. Accordingly, organisational performance in this sector requires more than programme delivery. It requires strategic coordination across staffing, academic quality, administrative capacity, student support and graduate responsiveness. Recent sustainable-development and business-education evidence indicates that institutional performance becomes stronger when strategic monitoring, evidence use, digital educational tools, innovation and policy-oriented decision-making are aligned with long-term development goals [14,15]. Strategic management therefore provides a relevant lens for understanding how private HEIs can move from operational activity to sustainable institutional performance.

2.3. Why strategic management may matter

A key limitation in the existing literature is that employee well-being and organisational performance are often discussed together, while the institutional conditions connecting them remain insufficiently explained. Strategic management offers a useful theoretical frame because staff-related conditions are more likely to become organisationally meaningful when they are considered alongside institutional priorities, workload planning, leadership practice, staff support, quality systems and

performance review [11]. This does not mean that strategic management automatically converts well-being into performance. Rather, it suggests that staff-related conditions become more visible and more actionable when they are embedded in formal institutional systems.

Evidence from sustainable-development strategy research supports this logic. Strategic management, policy implementation and governance arrangements become performance-relevant when they coordinate partnerships, institutional capacity, monitoring systems and implementation barriers within long-term development priorities [16]. This is consistent with the Resource-Based View, which argues that sustained performance depends not only on possessing valuable resources, but also on organising and deploying them effectively [17]. In higher education, staff capability becomes valuable when leadership, structure, incentives and systems support teaching quality, service consistency, research productivity and institutional reputation. Strategic management therefore provides a plausible theoretical explanation for why employee well-being proxies may become performance-relevant rather than remaining desirable but weakly connected institutional conditions. Emerging-market evidence also suggests that governance characteristics influence whether socially oriented practices translate into stronger performance outcomes [18].

2.4. The gap in the Omani context

In Oman, higher education policy is well developed, and private higher education is clearly visible in official planning and sector documentation. However, the internal institutional logic through which staff-related conditions become connected to performance in private HEIs remains underexplored. Existing discussion has focused mainly on sector growth, regulation, quality, student access and labour-market relevance. Recent Omani research also shows that academic integrity, student motivation and practical skills continue to affect how institutional quality and labour-market readiness are achieved, especially when cultural context is insufficiently considered [19].

The remaining gap is not whether employee well-being matters in general, but how staff-related conditions become strategically relevant within institutional processes. This gap is important because it connects directly with Oman Vision 2040 priorities, particularly education, learning, scientific research, national capabilities, governance and institutional performance [1,2]. From a sustainable social development perspective, this gap is important because higher education institutions cannot support national capability and lifelong learning effectively if their internal staff-support systems remain weak, fragmented or invisible in performance frameworks [6,7]. It is also relevant to sustainable social development, because higher education institutions contribute to human capability, employability and social progress only when their internal systems are capable of supporting both staff and students. This study addresses the gap by examining whether employee well-being proxies and strategic management are jointly associated with organisational performance in Oman's private higher education sector. Given the limits of publicly available data, the study treats this relationship as exploratory archival evidence rather than definitive causal proof.

3. Theoretical framing and analytical model

This study is anchored primarily in the Resource-Based View (RBV), while also drawing on higher education strategy literature to explain how institutional processes shape organisational outcomes. RBV is appropriate because it views internal resources as central to sustained organisational performance [17]. In private higher education, staff capability, professional continuity, commitment and institutional knowledge form part of the institution's productive core. Teaching quality, student support, administrative responsiveness, programme continuity and scholarly reputation all depend on how these human resources are supported, retained and organised.

RBV also emphasises that resources do not create value simply by existing. Their value depends on the institution's ability to organise, mobilise and direct them effectively. Accordingly, this study uses RBV not only to identify staff as valuable institutional resources, but also to explain why staff-related conditions may become more performance-relevant when they are supported by planning, leadership, prioritisation and performance-management systems. Employee well-being may strengthen commitment, reduce strain and support continuity, but the present study does not claim to prove a formal mediation process. Instead, strategic management is conceptualised as a plausible institutional mechanism that may help explain why staff-related conditions are associated with organisational performance in archival evidence [17]. This view is consistent with evidence that strategic investment in employees' digital and soft skills can translate workforce capabilities into greater administrative efficiency, institutional adaptability and organisational advancement [20].

On this basis, the study proposes an analytical sequence in which employee well-being proxies, strategic management and organisational performance are examined together. Employee well-being proxies represent the staff-related enabling condition. Strategic management represents the institutional organising process. Organisational performance represents the observable institutional outcome. The model assumes that employee well-being does not influence performance automatically. Rather, staff-related conditions may become more relevant where management systems organise support, capacity, planning and monitoring into durable institutional practices.

Empirically, the study represents employee well-being, strategic management and organisational performance through observable archival indicators. This makes the analysis quantitative in orientation, but cautious in interpretation. The model is used to examine associations, not to claim a strict causal or mediation pathway. This approach keeps the study aligned with the limits of the available sector-level public data while still allowing it to contribute to higher education governance and sustainable social development [11].

Figure 1 presents the study's analytical structure. Employee well-being proxies are positioned as the staff-related enabling condition, strategic management as the institutional organising mechanism and organisational performance as the institutional outcome.

Figure 1 presents the study's conceptual and exploratory analytical model. It is appropriate for Oman's private higher education sector because the national policy environment emphasises organised performance, sector supervision and data visibility [1,2,13]. In this context, staff-related conditions are more likely to become

performance-relevant when they are supported by structured management processes rather than informal goodwill alone. The model therefore adapts established management thinking to an Omani setting where governance, educational quality and institutional performance are closely connected. It should be read as a conceptual framework for examining associations, not as evidence of a confirmed mediation pathway.



Figure 1. Conceptual model linking employee well-being proxies, strategic management and organisational performance in private higher education in Oman.

Source. Developed by the authors based on Van de Voorde et al. [11], Fumasoli and Hladchenko [12], and Barney [18].

4. Materials and methods

The study uses an archival quantitative secondary-data design based on publicly accessible institutional and sectoral sources. It does not rely on surveys, interviews, experiments, or confidential institution-generated datasets. Instead, the analysis draws on official Omani policy and sectoral sources, open-data portals, ministry statistics, national strategy documents, accreditation-related public records, institutional websites, and peer-reviewed academic literature to construct a structured secondary-data evidence base for examining the relationship among employee well-being proxies, strategic management, and organisational performance in Oman's private higher education sector [2,3].

This design is appropriate because the study analyses observable institutional conditions through measurable secondary indicators. Secondary documents and archival materials are suitable for examining institutional processes through public evidence [21,22]. They also allow the study to compile quantitative proxy variables and assess their relationships using Omani higher education evidence. Rigour is strengthened through transparent source selection, explicit variable construction, dataset harmonisation, source comparison, and specified analytical procedures.

4.1. Data sources and selection criteria

Sources were excluded if they were purely promotional, insufficiently verifiable, repetitive without analytical value, or only loosely connected to the study's main constructs. Where official public sources presented figures differently, the study interpreted the evidence comparatively and through triangulation rather than assuming that any single figure could fully represent institutional reality.

Because the study relies on archival indicators rather than direct survey instruments, source selection was also guided by measurement-validity considerations. Each indicator was retained only when it had a clear theoretical link to the construct, was observable in a public and verifiable source, and could be interpreted consistently across the available years. This was important because employee well-being and strategic management are not directly visible in public datasets. They therefore had to be represented through institutional conditions that are theoretically connected to these constructs, such as support capacity, workload pressure, planning visibility, monitoring systems, governance structures and quality-assurance mechanisms. Indicators were not used simply because data were available; they were included only when they could be justified conceptually and interpreted cautiously.

The official source base included MOHERI initiatives and NCSI administrative and enrolment series [23–26]. The supporting academic and methodological evidence was organised by construct rather than presented as a single citation block. Accreditation, quality assurance and institutional governance informed the strategic-management and performance indicators [27]. Archival-proxy measurement, composite-index construction and secondary-data transparency guided the measurement strategy [28–30]. Staff well-being, work–life balance, burnout and occupational well-being informed the employee well-being proxy logic [31]. Quality-management and digital-learning evidence supported the interpretation of organisational support [32–34]. Leadership, decision-support and organisational-response evidence supported the interpretation of strategic capacity [35–40].

Table 1 summarises the secondary-data sources used in the study, their analytical role, and their relevance to the three core constructs.

As shown in **Table 1**, the evidence base combines official policy, statistical materials, Vision 2040 documents, and peer-reviewed scholarship to support a structured and context-sensitive analysis of Oman's private higher education sector.

Table 1. Secondary-data sources, analytical role and relevance to the study constructs.

Secondary source / dataset	Source type	Main construct(s) addressed	Main analytical role in the study	Relevance to Oman's private higher education context
Ministry of Higher Education, Research and Innovation, Private HEIs in Oman [1]	Official ministry source	Strategic management; organisational performance	Establishes the formal structure of the private higher education sector, including institutional scale, regulatory setting and ministry oversight	Directly relevant because it provides the official policy and sectoral context for private HEIs in Oman
Ministry of Higher Education, Research and Innovation, Initiatives & Projects of Higher Education [23]	Official ministry source	Strategic management; organisational performance	Identifies system-level instruments such as the Graduates Survey System and Higher Education Statistical System, supporting analysis of monitoring, planning and evidence use	Directly relevant because it shows how institutional performance is tracked and managed within Oman's higher education system

Table 1. (Continued).

Secondary source / dataset	Source type	Main construct(s) addressed	Main analytical role in the study	Relevance to Oman's private higher education context
National Centre for Statistics and Information higher education data portal [24–26]	Official statistical source	Organisational performance	Provides publicly accessible data on enrolment trends, administrative capacity and sectoral scale used to infer institutional performance conditions	Directly relevant because it offers national quantitative indicators specific to the Omani higher education environment
Oman Vision 2040 and related official implementation materials [2,3]	National strategy source	Strategic management; organisational performance	Situates the study within broader national priorities relating to education quality, governance, institutional effectiveness and labour-market responsiveness	Directly relevant because it frames the policy environment within which private HEIs are expected to operate
Van de Voorde, et al. [11]	Peer-reviewed review article	Employee well-being proxies; organisational performance	Provides the foundational argument that employee well-being matters for organisational outcomes, while also showing that the relationship is contingent rather than automatic	Indirect but conceptually central, as it supports the study's argument that staff-related conditions require an institutional organising process before they become performance-relevant
Ruiz, et al. [10]	Peer-reviewed systematic review	Employee well-being proxies	Clarifies how well-being is conceptualised and measured in academic settings, particularly in relation to stress, burnout, support and occupational conditions	Indirect but highly relevant, as it strengthens the higher education-specific interpretation of employee well-being
Fumasoli and Hladchenko [12]	Peer-reviewed conceptual article	Strategic management; organisational performance	Supports the view that higher education institutions must be analysed as strategically managed organisations shaped by leadership, alignment and institutional coordination	Indirect but highly relevant, as it provides the conceptual bridge between management processes and institutional outcomes
Barney [18]	Foundational theoretical article	Strategic management; organisational performance	Provides the Resource-Based View underpinning the article's argument that staff capacity becomes performance-relevant only when organised and mobilised effectively	Indirect but theoretically foundational, as it anchors the manuscript's analytical model
Rajagopal, et al. [31]	Peer-reviewed empirical article	Employee well-being proxies	Supplies Oman-based evidence on workload, organisational support and work–life balance within higher education employment conditions	Directly relevant because it offers context-sensitive evidence on well-being-related institutional conditions in Oman
Al Ghunaimi et al. [41]	Peer-reviewed conceptual chapter	Strategic management; organisational performance	Supports the role of institutional intelligence, ethical management and operational efficiency in strengthening organisational decision-making	Indirectly relevant because it provides a strategic perspective on organising institutional capabilities to improve performance
Oman Authority for Quality Assurance of Education [42]	Official quality-assurance source	Strategic management; organisational performance	Provides the national framework for quality assurance, accreditation, institutional standards and accountability in higher education	Directly relevant because it defines the quality-assurance environment governing higher education institutions in Oman
Delgado Vela [43]	Peer-reviewed systematic review	Employee well-being proxies	Synthesises evidence on occupational well-being among higher education teachers, particularly stress, burnout and organisational working conditions	Indirect but highly relevant because it strengthens the higher education-specific interpretation of employee well-being used in the study

Table 1. (Continued).

Secondary source / dataset	Source type	Main construct(s) addressed	Main analytical role in the study	Relevance to Oman's private higher education context
Simon, et al. [44]	Peer-reviewed empirical article	Employee well-being proxies	Provides institution-level evidence from Oman on occupational stress, anxiety and the importance of administrative support in shaping staff well-being	Directly relevant because it links employee experience to organisational response within an Omani higher education setting
Al-Amri, et al. [34]	Peer-reviewed empirical article	Strategic management; organisational performance	Helps demonstrate that governance and management are central to how higher education quality is understood and assessed in Oman	Directly relevant because it connects institutional quality evaluation with governance and managerial practice in the Omani sector
Alhajri et al. [27]	Peer-reviewed empirical article	Strategic management; organisational performance	Supports the argument that accreditation and governance are tied to institutional legitimacy, efficiency and management quality in Oman's higher education system	Directly relevant because it reinforces the governance-performance dimension of the Omani case

4.2. Unit of analysis, time frame, and data structure

The final unit of analysis is the sector-year, not the institution-year. Although an institution-year panel would be methodologically stronger, comparable institution-level public data for all private higher education institutions in Oman were not available across the required indicators. The empirical analysis therefore uses the overlapping annual sector-level indicators available from official public records, particularly enrolment and administrative-capacity data. The common descriptive dataset covers nine observable years. The lagged exploratory regression models use seven usable observations because the 2019–2021 gap overlaps with the COVID-19 period and prevents a clean one-year lag interpretation between 2018 and 2022. This gap is not treated as a simple technical issue. It may reflect pandemic-related disruption to enrolment behaviour, institutional operations and public reporting. The 2022 observation is therefore excluded from the main lagged model but retained in the descriptive discussion and robustness checks. This design is therefore presented as exploratory sector-level archival analysis, not as a full institutional panel study.

4.3. Variable construction and operationalisation

The study operationalises the three core constructs through archival proxy indicators derived from public secondary sources. The measurement logic follows a proxy-based approach: the selected indicators do not measure the latent constructs directly, but they capture observable institutional conditions that are theoretically associated with them. Employee well-being is represented through staff-related conditions such as workload pressure, support capacity, staff-development visibility and staffing stability because these indicators reflect the institutional environment in which academic and administrative employees perform their work. Strategic management is represented through planning visibility, performance monitoring, governance and quality-assurance systems, and graduate-tracking mechanisms because these indicators reflect the extent to which institutional action is organised, documented and linked to performance oversight. Organisational performance is represented through non-financial indicators such as enrolment continuity,

institutional responsiveness, administrative effectiveness, quality signals and graduate-oriented systems because these outcomes are more suitable for higher education than narrow commercial measures. These proxies are therefore used as cautious archival indicators, not as direct psychological or managerial measurements.

This is especially important in archival quantitative studies because proxy measures can weaken construct validity if the empirical indicator does not adequately reflect the theoretical construct it is intended to represent [28]. It is equally important where the study relies on composite indices because their construction requires transparent indicator selection, coding logic, aggregation procedures, and clear reporting of analytical decisions [29,30]. To strengthen construct validity, the study distinguishes between conceptual relevance, indicator observability and construct distinctiveness. Conceptual relevance means that each indicator must be theoretically connected to the construct it represents. Indicator observability means that the measure must be traceable to a public source rather than inferred from unsupported judgement. Construct distinctiveness means that the same indicator should not be used to represent two different constructs in the same empirical model unless this overlap is explicitly acknowledged and tested. For this reason, indicators with possible overlap were reviewed carefully, and sensitivity checks were used to assess whether the main interpretation depended on any single shared or closely related measure. This approach does not eliminate the limitations of archival proxy measurement, but it makes the measurement logic transparent and reduces the risk of treating administrative visibility, staff support and performance outcomes as interchangeable concepts.

Table 2 presents the variable definitions, proxy indicators, data sources, units of measurement, and expected directional signs used in the empirical analysis.

Table 2. Variable definitions, proxy indicators, data sources, units of measurement, and expected directional signs used in the empirical analysis.

Variable code	Construct	Proxy indicator / operational definition	Data source(s)	Unit / coding	Expected sign
TOTAL_ENR_GROWTH	Observable sector-level performance proxy	Annual total-enrolment growth used as the empirical dependent variable in the exploratory regression models	Derived from annual total enrolment in Oman's private universities and colleges using NCSI data	Year-to-year percentage change in total enrolment	Dependent variable
EWPI	Employee well-being proxy	Composite annual index capturing observable staff-related sector conditions through workload pressure and administrative support capacity	Constructed from reverse-coded WORKLOAD_P and ADMIN_SUPP using annual NCSI-derived values	Standardised composite index: average of population z-scores	+
WORKLOAD_P	Employee well-being proxy	Workload pressure proxy, reflecting the administrative support burden associated with student volume	NCSI	Students per administrator; reverse-coded before inclusion in EWPI so that higher EWPI values indicate stronger staff-support conditions	–
ADMIN_SUPP	Employee well-being proxy	Administrative support capacity available within the sector	NCSI	Administrators per 100 students	+
SMI	Strategic-management administrative-capacity proxy	Annual observable proxy for the administrative coordination capacity through which strategic management, monitoring and institutional support may be operationalised at sector level	Constructed from the annual number of administrators in private universities and colleges	Population-standardised z-score	+

Table 2. (Continued).

Variable code	Construct	Proxy indicator / operational definition	Data source(s)	Unit / coding	Expected sign
ADMIN_CAP	Control / auxiliary capacity indicator	Administrative capacity of the sector, reflecting coordination capacity and support infrastructure	NCSI	Number of administrators and administrators per 100 students, depending on model specification	Control / diagnostic
SIZE	Control variable	Institutional or sector size	NCSI	Total student enrolment	Control
OMN_SHARE	Control variable	Share of Omani students in total enrolment	NCSI	Percentage of total enrolment	Control
EXP_SHARE	Control variable	Share of expatriate / non-Omani students in total enrolment	NCSI	Percentage of total enrolment	Control
YEAR	Control variable	Time effect	Dataset coding	Calendar year	Control

Note. The exploratory regression variables were restricted to annual public data that could be verified consistently across the available sector-year observations. Annual total-enrolment growth was used as the empirical dependent variable and is interpreted as a narrow observable sector-level performance proxy rather than a complete organisational-performance index. EWPI was calculated from reverse-coded workload pressure and administrative support capacity. SMI was operationalised as an administrative-capacity proxy using the annual number of administrators in private universities and colleges. Broader documentary indicators, including accreditation visibility, graduate monitoring, institutional responsiveness, staff development, staff stability, planning visibility, KPI systems, governance and quality assurance, and graduate tracking, are retained for conceptual interpretation but are not treated as fully time-varying annual regression inputs.

To make the empirical construction of these variables transparent, Appendix **Table A1** reports the year-by-year archival values used to derive the observable proxy components and composite indices. This additional table clarifies how the annual NCSI-based indicators were converted into the variables used in the exploratory regression models and distinguishes the empirically verifiable annual measures from the broader documentary indicators retained for conceptual interpretation.

After reporting the year-by-year empirical coding in **Table A1**, **Table 3** summarises the broader conceptual interpretation of the three constructs and the supporting secondary source base.

Although OPI is presented as the broader conceptual construct of organisational performance, the regression models use annual total-enrolment growth as the empirical dependent variable. This decision was made because comparable historical data for all OPI components were not available across the full sector-year period. Accordingly, the empirical results should be interpreted as evidence on a narrow observable performance indicator, not as estimates of a complete organisational-performance index. The broader OPI logic is retained only to guide the conceptual interpretation of organisational performance in higher education.

4.4. Statistical procedure and model estimation

The empirical analysis proceeded in five stages. First, official annual data were compiled, screened and harmonised across the overlapping years available in the public records. Second, descriptive statistics were produced for the annual sector-level variables, including enrolment, administrative capacity and derived ratios. Third, pairwise correlations were calculated to assess the structure of the available data. Fourth, exploratory lagged regression models with heteroskedasticity-robust standard errors were estimated to examine whether the observed sector-level evidence was consistent with the proposed relationships among employee well-being proxies,

strategic management and organisational performance. Fifth, robustness checks were conducted using alternative lag structures, inclusion and exclusion of sensitive observations and non-parametric correlation tests.

Table 3. Operationalisation of the three core constructs in the study.

Core construct	Working definition in this study	Secondary indicators used in the analysis	Illustrative source base
Employee well-being proxies	Staff-related institutional conditions that shape the capacity of academic and administrative employees to perform effectively within higher education institutions	Workload pressure; organisational support; occupational stress and anxiety; work–life balance; administrative responsiveness; staff support conditions	Ruiz et al. [10]; Rajagopal et al. [31]; Delgado Vela [43]; Simon et al. [44]
Strategic management	The institutional process through which leadership, planning, prioritisation, governance, resource coordination and evidence use are aligned to support institutional goals and sustained performance	Leadership attention; planning systems; performance indicators; graduate tracking; quality-assurance mechanisms; governance frameworks; evidence integration; institutional monitoring	Ministry of Higher Education, Research and Innovation [1,13,23]; Fumasoli and Hladchenko [12]; Alhajri et al. [27]; Al-Amri et al. [34]
Organisational performance	A non-financial understanding of institutional effectiveness inferred from publicly observable higher education indicators rather than internal commercial or proprietary metrics	Sectoral scale and continuity; enrolment trends; administrative capacity; graduate relevance; labour-market orientation; institutional quality signals; institutional responsiveness	Oman Vision 2040 [2,3]; National Centre for Statistics and Information [24–26]; Ministry of Higher Education, Research and Innovation [1,13,23]

Note. **Table 3** summarises how the three central constructs are interpreted and operationalised in the present secondary-data study. Because the article does not rely on survey instruments, experimental measures or confidential institutional datasets, each construct is inferred through publicly accessible documentary, statistical, strategic and peer-reviewed evidence relevant to Oman’s private higher education context.

Four exploratory regression models were estimated. Model 1 examined whether the lagged employee well-being proxy index was associated with total-enrolment growth. Model 2 examined whether the lagged strategic-management proxy index was associated with total-enrolment growth. Model 3 included both lagged predictors to assess their joint explanatory value. Model 4 added the interaction term $EWPI(t-1) \times SMI(t-1)$ to examine whether strategic-management conditions shaped the association between employee well-being proxies and organisational performance.

Because the available public data did not provide a complete institution-year panel, the final models were estimated as exploratory sector-level OLS regressions using robust standard errors. Fixed-effects and random-effects panel estimators were not applied because the data do not contain repeated observations for individual institutions. The results are therefore reported as transparent archival evidence and are not interpreted as institution-level causal proof.

4.5. Statistical tools and diagnostic tests

Data extraction, coding, cleaning and initial variable construction were conducted in Microsoft Excel. Regression estimation, robust standard errors, model-fit assessment and supplementary checks were then conducted using statistical software. The analysis reports coefficients, robust standard errors, p-values, R-squared values, adjusted R-squared values and hypothesis decisions.

Multicollinearity was examined through the correlation matrix and the variance inflation factor for the combined model. The VIF value for EWPI and SMI in the

combined model was 2.33, which is below conventional warning thresholds. Given the small number of usable sector-year observations, the findings are presented with caution and not overstated as definitive causal evidence.

4.6. Measurement validity and construct distinctiveness

The study recognises that employee well-being and strategic management are complex constructs that are normally measured through surveys, interviews or internal institutional records. Because such data are not publicly available across Oman's private higher education sector, the study uses archival proxy indicators. This choice is methodologically defensible, but only if the proxies are interpreted carefully. The indicators are therefore treated as observable institutional signals, not as direct measures of employee attitudes, psychological well-being or internal managerial quality.

Employee well-being is proxied empirically through annual workload pressure and administrative support capacity, because these are the staff-related conditions that can be traced consistently in the public sector-year data. Staff-development visibility and staff stability remain conceptually relevant, but they are not treated as annual regression inputs because comparable historical coding could not be verified across the full period. Strategic management is proxied empirically through administrative capacity, understood as an observable annual indicator of coordination capacity within the sector. Broader strategic-management indicators, including planning visibility, governance structures, performance-monitoring systems, quality-assurance mechanisms and graduate-tracking arrangements, remain important to the conceptual interpretation but are not treated as fully time-varying annual measures. Organisational performance is interpreted conceptually as broader than enrolment, but annual total-enrolment growth is used as the narrow empirical dependent variable in the regression models.

To address construct distinctiveness, the study avoided treating the same public indicator as evidence for several constructs at the same time. Where indicators were conceptually close, especially administrative-capacity measures, they were reviewed and assigned according to their strongest theoretical role. Additional sensitivity checks were used to examine whether the findings depended on overlapping indicators. Multicollinearity diagnostics were also considered because strong overlap among indicators would weaken confidence that employee well-being proxies and strategic management were empirically distinguishable. The results should therefore be understood as validity-conscious archival evidence rather than as direct psychometric validation.

4.7. Methodological boundaries

The methodology has several clear boundaries. Most importantly, the analysis relies on archival proxy indicators rather than direct psychometric or survey-based measures of employee well-being. The findings should therefore be interpreted as estimates based on observable institutional conditions rather than direct measurements of latent staff attitudes or psychological states. In addition, the strength of the empirical model depends on the breadth, comparability, and consistency of publicly accessible

institutional data across Oman's private higher education sector. These limitations do not invalidate the quantitative secondary-data design, but they do require careful interpretation of the results and transparency in variable construction, indicator coding, and model specification.

5. Exploratory quantitative results

This section reports the descriptive statistics, correlation results, exploratory regression estimates and robustness checks used to examine the proposed relationships. The analysis is intentionally presented as sector-level archival evidence because the publicly available data do not provide a complete institution-year panel. Accordingly, the results are used to assess whether the available evidence is consistent with the proposed framework, not to make definitive causal or institution-level claims.

The section is organised into four parts. Section 5.1 presents the descriptive sector-level evidence, including **Tables 4–8**. Section 5.2 reports the exploratory regression estimates in **Table 9**. Section 5.3 presents the robustness checks in **Table 10**. Section 5.4 interprets the findings cautiously in light of the small public archival sample.

5.1. Descriptive sector-level evidence

The first result concerns sectoral scale and continuity. The Ministry of Higher Education, Research and Innovation reports that Oman has 27 private universities and colleges with enrolment of approximately 35,000 students, confirming that private higher education is a substantial part of the national education system rather than a marginal supplement [1]. The National Centre for Statistics and Information presents a broader statistical picture for the category “2-University & Private Colleges,” reporting 65,435 Omani students and 2801 expatriate/non-Omani students in 2023 [25,26]. Although the figures are not identical, they point in the same direction: private higher education in Oman has reached a scale at which performance must be understood as a system-management issue rather than a narrow academic one.

Performance in a sector of this size cannot be reduced to classroom delivery or programme availability alone. Once enrolment reaches tens of thousands and is supported by a substantial administrative structure, institutional performance becomes inseparable from coordination, resource allocation, continuity of service and the management of complexity. NCSI data show that Omani student enrolment in the “2-University & Private Colleges” category increased from 49,795 in 2012 to 65,435 in 2023, while the same source reports 1,807 administrators in 2023 [24,26]. These figures indicate that institutional performance depends not only on academic intent, but also on governance capacity, administrative coordination and support systems able to sustain quality under expanding demand.

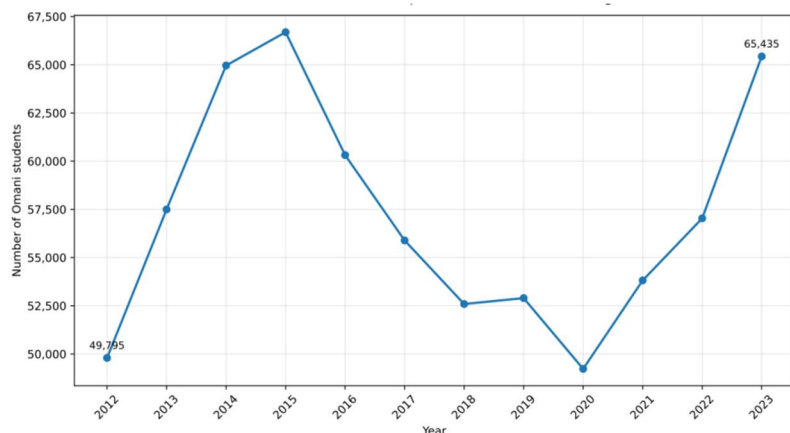
Table 4 reports the descriptive statistics for the annual sector-level indicators available from the official public record.

Table 4. Descriptive statistics for annual sector-level indicators used in the study.

Variable	Description	Observations	Mean	Std. Dev.	Minimum	Maximum
OMANI_ENR	Omani student enrolment	9	58,912.89	5909.44	49,795	66,692
EXPAT_ENR	Expatriate / non-Omani student enrolment	9	2864.56	399.43	2320	3602
TOTAL_ENR	Total student enrolment	9	61,777.44	6208.96	52,115	70,294
ADMIN	Number of administrators	9	1568.33	198.19	1301	1904
ADMIN_PER100	Administrators per 100 students	9	2.557	0.395	2.117	3.432
STUD_PER_ADMIN	Students per administrator	9	39.852	5.534	29.136	47.236
OMANI_SHARE	Omani students as % of total enrolment	9	95.365	0.409	94.803	95.895
EXPAT_SHARE	Expatriate / non-Omani students as % of total enrolment	9	4.635	0.409	4.105	5.197

Note. **Table 4** is based on the overlapping years for which all three official annual series are available simultaneously: 2012–2018, 2022 and 2023. Descriptive statistics are calculated from the NCSI series for Omani students, expatriate/non-Omani students and administrators in “2-University & Private Colleges”. Administrators per 100 students and students per administrator are derived from those official counts [24–26].

To clarify the pattern of continuity, fluctuation, and recovery across the period under review, **Figure 2** presents the official NCSI time series for Omani student enrolment in private universities and colleges from 2012 to 2023.

**Figure 2.** Omani student enrolment in private universities and colleges, 2012–2023.

Source. National Centre for Statistics and Information [26]. Oman — Students Enrolled — 2-University & Private Colleges — Total — Total — Omani — Total, 2012–2023 series; 2023 value: 65,435.

As **Figure 2** indicates, Omani enrolment did not rise in a simple linear pattern. Even so, the 2023 level exceeded the 2012 baseline by a substantial margin, reinforcing the view that private higher education in Oman has become a sector of sustained institutional significance. The fluctuation within the trend is equally important because it suggests that performance depends not on uninterrupted upward momentum, but on the ability to maintain relevance and continuity under changing conditions. In this sense, enrolment continuity becomes a visible proxy for institutional resilience.

Table 5 presents the common-year annual panel used for the sector-level quantitative analysis.

Table 5. Annual sector-level panel for private universities and colleges in Oman.

Year	Omani enrolment	Expatriate enrolment	Total enrolment	Administrators	Administrators per 100 students	Students per administrator	Omani share (%)	Expatriate share (%)
2012	49,795	2320	52,115	1301	2.496	40.058	95.548	4.452
2013	57,498	2796	60,294	1336	2.216	45.13	95.363	4.637
2014	64,962	3388	68,350	1447	2.117	47.236	95.043	4.957
2015	66,692	3602	70,294	1562	2.222	45.003	94.876	5.124
2016	60,316	2634	62,950	1562	2.481	40.301	95.816	4.184
2017	55,891	2802	58,693	1562	2.661	37.576	95.226	4.774
2018	52,591	2883	55,474	1904	3.432	29.136	94.803	5.197
2022	57,036	2555	59,591	1634	2.742	36.469	95.712	4.288
2023	65,435	2801	68,236	1807	2.648	37.762	95.895	4.105

Note. All values are derived directly from the NCSI official annual series for Omani enrolment, expatriate/non-Omani enrolment and administrators in private universities and colleges. Total enrolment, administrators per 100 students, students per administrator and enrolment shares are calculated from those published values [24–26].

A further implication concerns data coherence. The differences between ministry narrative reporting and statistical portal reporting suggest that institutional performance should also be understood in informational terms. Strategy depends not only on planning, but also on the quality, consistency and usability of data. Where public evidence is fragmented, strategic management must include stronger data governance to align reporting, evidence systems and planning decisions.

Table 6 reports the correlation matrix for the annual indicators available across the overlapping years of the public dataset.

Table 6. Correlation matrix for annual sector-level indicators ($n = 9$).

Variable	OMANI_ENR	EXPAT_ENR	TOTAL_ENR	ADMIN	ADMIN_PER100	STUD_PER_ADMIN
OMANI_ENR	1	0.735	0.999	0.139	-0.532	0.548
EXPAT_ENR	0.735	1	0.764	0.104	-0.362	0.464
TOTAL_ENR	0.999	0.764	1	0.136	-0.529	0.551
ADMIN	0.139	0.104	0.136	1	0.763	-0.743
ADMIN_PER100	-0.532	-0.362	-0.529	0.763	1	-0.986
STUD_PER_ADMIN	0.548	0.464	0.551	-0.743	-0.986	1

Note. Correlations are calculated using the common-year annual panel shown in **Table 5**. The matrix is based solely on the official NCSI annual series for administrators, Omani student enrolment and expatriate/non-Omani student enrolment, together with ratios derived directly from those series [24–26].

Because **Table 6** reports correlations among the raw annual indicators, Appendix **Table A2** adds a construct-level correlation matrix for the variables used directly in the exploratory regression models.

The second descriptive result concerns strategic-management architecture. Strategic management is already embedded in Oman's private higher education environment rather than being imposed as an external lens. The Ministry's private-HEI framework refers to academic affiliation, quality improvement, programme diversification, the Performance Indicators Manual and ministry feedback documents for private HEIs [1]. This indicates that institutions are expected to operate within a performance-oriented system based on monitoring, comparison and structured improvement.

GCC evidence further suggests that quality systems are more effective when technical procedures are supported by awareness, participation, empowerment and sustained managerial commitment [32]. This interpretation is reinforced by the Ministry's "Initiatives & Projects of higher education" page, which highlights the Graduates Survey System and the Higher Education Statistical System as tools for collecting evidence on graduates, labour-market competencies, students, academics, administrators, finance and institutional outcomes [23]. These systems show that performance in private higher education is assessed not only through internal functioning, but also through graduate outcomes, sectoral visibility and evidence-based oversight.

Table 7 reports the year-on-year growth rates of the core enrolment indicators for 2013–2023.

Table 7. Year-on-year growth rates of enrolment indicators, 2013–2023 (%).

Year	Omani enrolment growth (%)	Expatriate enrolment growth (%)	Total enrolment growth (%)
2013	15.47	20.52	15.69
2014	12.98	21.17	13.36
2015	2.66	6.32	2.84
2016	-9.56	-26.87	-10.45
2017	-7.34	6.38	-6.76
2018	-5.9	2.89	-5.48
2019	0.58	1.6	0.64
2020	-6.94	2.08	-6.47
2021	9.32	-0.5	8.76
2022	5.98	-14.12	4.93
2023	14.73	9.63	14.51

Note. Growth rates are calculated from the official annual NCSI series for Omani and expatriate/non-Omani student enrolment. Total-enrolment growth is derived from the annual total of those two series.

Strategic management therefore appears as an observable institutional architecture, not merely an abstract managerial ideal. It is visible in formal plans, routines, monitoring systems and evaluative mechanisms that help institutions define and sustain performance. This interpretation is supported by Omani higher education governance literature, which shows that governance, accreditation and management are central to institutional legitimacy and perceived quality [33].

The third descriptive result concerns employee well-being evidence. This part of the analysis must be interpreted carefully because the available public sources do not

provide a national, disaggregated well-being index for staff working specifically in private higher education institutions in Oman.

Table 8 provides a baseline-to-latest-year comparison of the staff-related and performance-related indicators that are publicly observable in the official dataset.

Table 8. Baseline-to-latest-year comparison of observable sector-level indicators (2012 vs 2023).

Indicator	2012	2023	Absolute change	Percentage change (%)
Omani enrolment	49,795	65,435	15,640	31.41
Expatriate enrolment	2320	2,801	481	20.73
Total enrolment	52,115	68,236	16,121	30.93
Omani share (%)	95.548	95.895	0.347	0.36
Expatriate share (%)	4.452	4.105	-0.347	-7.79
Administrators	1301	1807	506	38.89
Administrators per 100 students	2.496	2.648	0.152	6.08
Students per administrator	40.058	37.762	-2.296	-5.73

Note. **Table 8** compares the earliest and latest common years available in the official annual series used in the study. It combines the NCSI enrolment and administrator data and the ratios derived directly from those values.

This limitation does not weaken the analysis, but it does require the argument to rely on converging evidence of staff experience and organisational response. In Oman, work-life balance among female higher education staff has been linked to organisational, cultural and career-related factors, including workload, organisational support and role pressures [31]. Similarly, research on adaptive e-learning shows that digital educational environments may intensify distraction, anxiety, cognitive overload and emotional fatigue when behavioural and psychological dimensions are not properly addressed [34].

Omani organisational evidence supports the same interpretation. Employee satisfaction is shaped by managers' ability to encourage cooperation, recognise staff capabilities, support idea-sharing and use communication and delegated authority constructively [35]. Simon et al. [44] also report post-pandemic stress and anxiety, while highlighting the role of administrative support in occupational well-being. Together, this evidence does not support a generalised claim about all private HEIs in Oman, but it does indicate that staff well-being is shaped by organisational response rather than by individual conditions alone.

The wider higher education literature reinforces this view. Delgado Vela [43] identifies mental health, work-life balance and organisational well-being as key dimensions of occupational well-being, while emphasising leadership commitment, institutional resources and proactive organisational culture. This supports the study's argument that employee well-being becomes performance-relevant when institutions actively organise, support and respond to staff-related conditions.

5.2. Exploratory regression results

Table 9 reports the exploratory regression estimates, including coefficients, robust standard errors, *p*-values, model-fit statistics and interpretation of the exploratory hypotheses.

Table 9. Regression results for total-enrolment growth in Oman's private universities and colleges.

Variable / statistic	Model 1: EWPI	Model 2: SMI	Model 3: Combined model	Model 4: Interaction model
Constant	4.272 (5.240), <i>p</i> = 0.415	-0.487 (6.586), <i>p</i> = 0.941	0.710 (6.596), <i>p</i> = 0.914	-1.300 (4.753), <i>p</i> = 0.784
EWPI(t-1)	2.453 (5.989), <i>p</i> = 0.682; 95% CI [-12.94, 17.85]	—	7.719 (5.627), <i>p</i> = 0.170; 95% CI [-7.90, 23.34]	13.123 (5.896), <i>p</i> = 0.026; 95% CI [-5.64, 31.89]
SMI(t-1)	—	-8.824 (6.723), <i>p</i> = 0.189; 95% CI [-26.11, 8.46]	-12.431 (4.375), <i>p</i> = 0.004; 95% CI [-24.58, -0.28]	-8.220 (5.465), <i>p</i> = 0.133; 95% CI [-25.61, 9.17]
EWPI(t-1) × SMI(t-1)	—	—	—	16.849 (8.240), <i>p</i> = 0.041; 95% CI [-9.37, 43.07]
Observations	7	7	7	7
R-squared	0.025	0.291	0.487	0.744
Adjusted R-squared	-0.170	0.149	0.231	0.488
Robust standard errors	Yes	Yes	Yes	Yes
Exploratory hypothesis examined	H1	H2	H4	H3
Exploratory interpretation	Not supported	Not supported	Exploratory pattern only	Exploratory pattern only
VIF diagnostic	Not applicable: single predictor model	Not applicable: single predictor model	EWPI = 2.33; SMI = 2.33	Not reported because the interaction term and very small sample may inflate VIF interpretation
Interpretation	EWPI(t-1) is positive but not statistically significant; therefore, no direct independent support is found for H1.	SMI(t-1) is negative and not statistically significant; therefore, no direct independent support is found for H2.	The combined model improves explanatory fit, but this improvement is interpreted descriptively because the sector-year sample is very small; H4 is not treated as confirmed.	The interaction coefficient is positive, but with seven observations and very limited residual degrees of freedom, it is treated only as an illustrative pattern; H3 is not treated as confirmed.
Caution	Small sector-level archival sample	Small sector-level archival sample	Small sector-level archival sample	Exploratory interaction result; avoid causal overstatement

Note. Robust standard errors are reported in parentheses, and 95 % confidence intervals are reported alongside *p*-values for the main predictors. EWPI(t-1) is the lagged employee well-being proxy index constructed from annual workload pressure and administrative support capacity. SMI(t-1) is the lagged strategic-management administrative-capacity proxy constructed from the annual number of administrators. The dependent variable is annual total-enrolment growth. The symbol “—” indicates that the variable was not included in that model by design, not that data was missing. Given the very small number of observations, the confidence intervals are used to show estimation uncertainty and the results are interpreted as exploratory rather than confirmatory.

The negative SMI coefficient in Models 2–4 requires cautious interpretation. It should not be read as evidence that strategic management reduces performance. A more plausible explanation is that administrative capacity and monitoring visibility may increase after enrolment pressure, reporting gaps or institutional adjustment. Strategic-management capacity may therefore be partly a response to sectoral performance challenges rather than only an antecedent of performance. The negative sign may also reflect timing mismatch, reverse causality, suppression effects or instability caused by the very small sample. The result therefore qualifies the RBV-based argument: strategic management may organise institutional resources, but the present archival evidence cannot confirm a simple positive linear effect.

The regression results provide cautious and mixed support for the proposed framework. The single-predictor models do not provide direct support for H1 or H2. EWPI(t-1) is positive but not statistically significant in Model 1, while SMI(t-1) is also not independently supported in Model 2. However, the combined model improves explanatory power, and the interaction model indicates that strategic-management conditions may shape the relationship between employee well-being proxies and organisational performance. These findings support H3 and H4 cautiously, while confirming that the study should avoid overstating causal claims.

5.3. Robustness checks

Table 10 reports the robustness checks conducted to assess whether the exploratory findings remain directionally stable across alternative specifications.

Table 10. Robustness checks for the sector-level regression analysis.

Robustness check	Sample / specification	EWPI result	SMI result	Model fit / correlation	Interpretation
Base combined lagged model	$n = 7$; excludes 2022 gap	$\beta = 7.719$; $p = 0.170$	$\beta = -12.431$; $p = 0.004$	$R^2 = 0.487$	Combined model improves fit, but EWPI remains non-significant.
Including 2022 gap	$n = 8$; keeps 2022	$\beta = 9.634$; $p = 0.002$	$\beta = -10.827$; $p < 0.001$	$R^2 = 0.448$	Direction remains informative, but the lag is less clean.
Excluding 2023 recovery year	$n = 6$	$\beta = 1.515$; $p = 0.238$	$\beta = -17.241$; $p < 0.001$	$R^2 = 0.985$	Results are highly sensitive to the very small sample.
Non-lagged same-year model	$n = 7$	$\beta = -8.880$; $p = 0.158$	$\beta = 5.261$; $p = 0.568$	$R^2 = 0.337$	Same-year specification weakens the main interpretation.
Spearman correlation: EWPI	$n = 7$	$\rho = 0.286$; $p = 0.535$	—	Non-parametric check	No robust monotonic direct EWPI relationship is confirmed.
Spearman correlation: SMI	$n = 7$	—	$\rho = -0.408$; $p = 0.364$	Non-parametric check	No robust monotonic direct SMI relationship is confirmed.
Overall robustness judgement	All checks	Mixed	Mixed	Exploratory only	The combined and interaction results are directionally informative, but they should be interpreted as exploratory sector-level evidence rather than definitive hypothesis confirmation.

Note. The robustness checks show that the findings are directionally informative but not uniformly stable across all specifications. The combined lagged model provides stronger explanatory power than the single-predictor models, but the small sector-level sample requires cautious interpretation. These checks strengthen transparency while confirming that the study should avoid causal overstatement.

The robustness checks show that the results are informative but not uniformly stable. The combined lagged model provides stronger explanatory power than the single-predictor models, but the findings remain sensitive to specification choices and to the very small sector-level sample. The checks therefore strengthen transparency while confirming that the study should be interpreted as exploratory archival analysis rather than definitive hypothesis confirmation.

5.4. Interpretation of the exploratory findings

The exploratory regression results provide cautious and mixed support for the proposed framework. H1 is not directly supported in the single-predictor model because EWPI(t-1) is positive but not statistically significant ($\beta = 2.453$, $p = 0.682$). H2 is also not directly supported in the single-predictor model because SMI(t-1) is negative and not statistically significant ($\beta = -8.824$, $p = 0.189$). However, when both variables are entered together, the model fit improves from $R^2 = 0.025$ in Model 1 and $R^2 = 0.291$ in Model 2 to $R^2 = 0.487$ in Model 3. The interaction model is retained only as an illustrative pattern, suggesting that the association between employee well-being proxies and organisational performance may vary under different strategic-management conditions; however, this pattern is not treated as confirmatory evidence because the usable sector-year sample is very small.

These results should not be read as definitive hypothesis confirmation because the sample is small and sector-level. Instead, they provide exploratory archival evidence that the proposed framework is more convincing when employee well-being proxies and strategic-management capacity are examined together rather than separately. The findings therefore strengthen the manuscript by moving it beyond description, while still requiring cautious interpretation because the analysis is based on public aggregate indicators rather than a full institution-year panel.

When the evidence is read together, it is consistent with a cautious institutional pathway, although it does not prove formal mediation. Ministry and NCSI sources show that Oman's private higher education sector is large, monitored and embedded in formal performance systems. Governance evidence links quality and legitimacy to structured oversight, accreditation and institutional management, while well-being literature shows that staff experience is shaped by workload, leadership, support and organisational climate. Taken together, these strands suggest that employee well-being proxies may become more performance-relevant when strategic management is visible through planning, monitoring, governance and quality-assurance arrangements [1,13,23].

The evidence is consistent with four practical pathways that should be interpreted as explanatory possibilities rather than confirmed causal mechanisms. Strategic management may help connect staff experience to institutional priorities, link staff conditions to quality assurance and service reliability, embed staff-related evidence in monitoring and performance review, and give durability to well-being responses by placing them within governance structures. These pathways suggest how strategic management may give organisational form to staff-related conditions that might otherwise remain fragmented or institutionally invisible.

6. Discussion

The exploratory regression results show that strategic management has a measurable but complex role in explaining organisational performance in Oman's private higher education sector. The evidence does not support a simple linear claim that employee well-being proxies or strategic management, when examined separately, automatically improve institutional performance. Instead, the results point to a more cautious interpretation: staff-related conditions and strategic-management capacity

appear to matter most when they are considered together. This is consistent with the measurement design of the study. Since the analysis relies on archival institutional proxies, the findings show how observable support, workload and management conditions relate to performance indicators, rather than proving how employees personally experience well-being.

A more cautious interpretation emerges from the combined and interaction models. These results suggest that staff-related conditions and strategic-management capacity may be connected in the public archival record, but they do not prove that strategic management causes stronger performance. The evidence is more appropriately read as a sector-level pattern showing that workload, administrative support, coordination capacity and enrolment growth should be examined together. This interpretation is consistent with the conceptual framework, but it remains exploratory because the empirical design is based on a very small public archival dataset.

In Oman's private higher education sector, organisational performance cannot be explained through staff motivation, workload conditions or employee experience alone. It also depends on arrangements that align people, information, governance and strategic priorities [1,13,23–26]. This supports a more disciplined interpretation: people-related conditions matter, but their performance value depends on whether institutions can connect them with planning, quality assurance, evidence use and performance review. This interpretation is also consistent with burnout and engagement research, which shows that organisational effectiveness weakens when employee strain is treated as a private individual issue rather than a systemic institutional matter [36].

The findings therefore position strategic management as more than an administrative function. It is not enough for private HEIs to recognise employee well-being as desirable. They also need structures that make staff-related evidence visible, actionable and connected to decision-making. Without such structures, well-being-related concerns may remain fragmented and difficult to link with sustained institutional performance. Conversely, strategic planning becomes operationally weak if it is disconnected from staff capacity, workload realities and organisational support.

6.1. Theoretical contribution

The main theoretical contribution of this study is that it reframes the well-being–performance relationship through a strategic-management lens. Rather than assuming that employee well-being proxies directly lead to stronger organisational performance, the article argues that staff-related conditions become institutionally relevant when they are embedded within strategic planning, governance systems, quality assurance and managerial coordination [11]. This provides a cautious and realistic explanation of the relationship between people-related conditions and institutional performance.

The second contribution is contextual. By focusing on Oman's private higher education sector, the study shows how national policy priorities, governance structures, quality systems, leadership practices and public performance mechanisms shape the relationship between staff-related conditions and organisational outcomes [1–3,13,23]. This grounding moves the argument beyond abstract theorising and places employee

well-being within a specific institutional and policy environment. The Omani context is particularly important because private HEIs operate under growing expectations for accountability, labour-market responsiveness, quality assurance and alignment with Oman Vision 2040.

The third contribution concerns how organisational performance should be understood in higher education. The study avoids reducing performance to narrow financial or productivity measures. Instead, it frames performance through sectoral continuity, administrative capacity, monitoring systems, graduate relevance and institutional responsiveness. This broader view is more appropriate for higher education, where performance is multi-dimensional and cannot be captured fully through commercial indicators alone.

Overall, the article offers a context-sensitive explanation of how management structures shape the institutional relevance of staff-related conditions. Its theoretical value lies not in claiming that employee well-being automatically improves performance, but in showing that strategic management may help determine whether staff-related conditions become visible, organised and performance-relevant within higher education institutions.

7. Practical implications

For private higher education institutions in Oman, the main implication is that staff-related conditions should be treated as part of strategic management, not as a separate welfare concern. Staff well-being should be reflected in annual planning, programme review, workload policy, leadership evaluation and internal quality-assurance processes. In a sector shaped by accreditation requirements, performance indicators and labour-market expectations, a reactive approach to staff support is unlikely to sustain institutional performance [13,23]. This is also a sustainability issue. Sustainable higher education depends not only on curriculum reform or student access, but also on the institutional conditions that allow academic and administrative staff to sustain quality, continuity and responsiveness over time [6–8].

Three managerial priorities follow from the findings. First, private HEIs should strengthen workload governance. This requires regular review of workload allocation, administrative burden and expectations across teaching, academic support and administrative functions. Workload, organisational support and role pressure are closely connected to staff well-being and institutional effectiveness, especially in higher education environments where academic and administrative responsibilities often overlap [10].

Second, institutions should strengthen leadership capability. Supportive administration, clear communication and institutional responsiveness are central to staff experience and organisational stability. Leadership is more effective when it combines vision, trust, collaboration and encouragement rather than relying mainly on formal authority [37]. Leadership development, transparent communication and structured engagement initiatives can strengthen employee trust, participation and responsiveness during institutional change [38]. Digital trust mechanisms, data acquisition, advanced analytics and adaptive governance can also improve

institutional responsiveness where organisations are managing complex transformation processes [39].

Third, institutions should improve evidence integration. Statistical systems, graduate-tracking mechanisms and internal quality-assurance processes should be used to connect staff-related policies with student outcomes, programme demand and institutional performance indicators. Staff support should therefore form part of the same evidence system that guides performance management. Decision-support systems create greater institutional value when they combine operational efficiency with accountability, transparency and disciplined monitoring [40].

For policymakers and regulators, private HEI performance frameworks would be stronger if they included explicit staff-related indicators. Oman already has systems for graduate outcomes and institutional statistics, but public evidence on staff conditions remains limited [23–26]. Systematic collection of turnover rates, workload indicators, promotion patterns, absenteeism and staff climate measures would strengthen policy, research and governance. It would also place human sustainability within institutional performance assessment, which is directly relevant to sustainable social development because higher education quality depends on the people who deliver and sustain it.

8. Limitations and future research

This study has several limitations that should be considered when interpreting the findings. The most important limitation concerns the level of analysis. The empirical data are sector-level annual aggregates rather than institution-level panel observations. The regression results are therefore exploratory and cannot support strong institution-level causal claims. The small number of usable observations also limits statistical power, increases sensitivity to individual years and prevents the use of richer panel estimators. For this reason, the study reports regression coefficients and robustness check transparently, but interprets them as cautious archival evidence rather than definitive hypothesis confirmation.

A further limitation concerns endogeneity and reverse causality. The study cannot rule out the possibility that rising enrolment encouraged subsequent administrative hiring, stronger monitoring systems and greater strategic-planning visibility. In other words, strategic-management capacity may partly be a consequence of sectoral growth and institutional pressure, not only an antecedent of performance. The lagged specification reduces but does not eliminate this concern. The results should therefore be interpreted as associations within a public archival dataset rather than evidence of causal direction.

A second limitation concerns measurement. Although regression models were estimated, the analysis relies on archival proxy indicators rather than direct staff-level or institution-level survey measures. Employee well-being is therefore not measured as a psychological state, and strategic management is not measured through internal managerial assessments. Both constructs are represented through observable institutional signals available in the public record. This limits construct validity and requires careful interpretation. The study reduces this risk by explaining the theoretical rationale for each measure, avoiding unnecessary duplication across constructs,

reporting diagnostic checks and interpreting the findings as exploratory archival evidence rather than causal proof.

A third limitation is that employee well-being evidence in the Omani higher education context remains uneven. Public data are not consistently disaggregated for private higher education institutions, so some insights rely on institution-specific studies or broader higher education literature rather than harmonised sector-wide staff datasets. This does not invalidate the study, but it means that the findings should be read as a disciplined first step rather than a final account of staff well-being across the sector.

A fourth limitation concerns public data consistency. Official public sources are not always fully aligned in how they report private-sector enrolment and related institutional indicators. This required cautious interpretation and comparative reading of the available evidence. Future research would benefit from harmonised institution-level data from the Ministry of Higher Education, Research and Innovation, the National Centre for Statistics and Information and the Oman Authority for Quality Assurance of Education [1,13,23,41].

Future studies should extend this work in three directions. First, researchers should conduct multi-institution quantitative analysis once comparable staff and performance data become available. Second, future work should compare public and private higher education institutions in Oman and across GCC systems to assess whether the observed patterns are sector-specific or regionally consistent. Third, qualitative evidence from academic leaders, HR units and quality-assurance offices would help explain how staff-related concerns are integrated into institutional strategy, workload governance and performance monitoring. Such work would strengthen the connection between higher education management, human sustainability and sustainable social development.

9. Conclusion

This study examined whether employee well-being proxies and strategic-management administrative capacity are associated with annual total-enrolment growth in Oman's private higher education sector. The findings support a cautious conclusion. The single-predictor models do not provide reliable evidence that employee well-being proxies or strategic-management administrative capacity independently explain enrolment growth. The combined and interaction models are directionally informative, but they should not be interpreted as confirmatory evidence because the usable sector-year sample is very small and the analysis is based on archival proxies.

In a sector that is formally supervised, increasingly data-oriented and aligned with national priorities for educational quality and labour-market responsiveness, performance depends on more than enrolment growth or programme expansion. It also depends on whether institutions can connect staff support, workload governance, administrative capacity, quality assurance and evidence-based decision-making within one coherent strategic framework. The statistical evidence therefore moves the manuscript beyond a purely conceptual argument, while remaining carefully bounded because the analysis is based on a small sector-level public archival dataset.

The study suggests that private higher education institutions in Oman should treat staff support, workload governance, leadership quality and performance monitoring as connected elements of strategic management. The findings do not support the assumption that well-being proxies improve performance automatically. Rather, they provide preliminary evidence that the performance value of staff-related conditions depends on managerial discipline, reliable data and the institution's ability to organize those conditions into sustained organisational outcomes. This conclusion is directly relevant to sustainable social development because higher education institutions contribute to national capability only when their internal systems support both institutional performance and the people who deliver it [6,7].

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Appendix

Table A1. Year-by-year archival coding of proxy components and composite indices.

Year	Total enrolment	OPI empirical proxy: total-enrolment growth (%)	OPI growth score	WORKLOAD_P: students per administrator	WORKLOAD_AD_P score	ADMIN_SUPP: administrators per 100 students	ADMIN_N_SU_PP score	WORKLOAD_P reverse z	ADMIN_N_SU_PP z	EWPI	Administrators	SMI score	SMI administrative-capacity z
2012	52,115	Baseline	Baseline	40.058	1	2.496	1	-0.039	-0.164	-0.102	1,301	0	-1.431
2013	60,294	15.69	2	45.13	0	2.216	0	-1.012	-0.915	-0.963	1,336	0	-1.243
2014	68,350	13.36	2	47.236	0	2.117	0	-1.415	-1.181	-1.298	1,447	0	-0.649
2015	70,294	2.84	1	45.003	0	2.222	0	-0.987	-0.899	-0.943	1,562	1	-0.034
2016	62,950	-10.45	0	40.301	1	2.481	1	-0.086	-0.204	-0.145	1,562	1	-0.034
2017	58,693	-6.76	0	37.576	2	2.661	2	0.436	0.278	0.357	1,562	1	-0.034
2018	55,474	-5.48	0	29.136	2	3.432	2	2.054	2.347	2.2	1,904	2	1.796
2022	59,591	4.93	1	36.469	2	2.742	2	0.648	0.496	0.572	1,634	2	0.351
2023	68,236	14.51	2	37.762	1	2.648	1	0.401	0.244	0.322	1,807	2	1.277

Source. Developed by the authors.

Note. Total enrolment, administrators, administrators per 100 students and students per administrator are derived from the official annual NCSI values reported in the manuscript. OPI is not estimated as a full composite index in the regression models; annual total-enrolment growth is used as the empirical observable performance proxy. WORKLOAD_P is reverse-coded because a lower number of students per administrator indicates lower workload pressure. ADMIN_SUPP reflects administrative support capacity. EWPI is calculated as the average of the population-standardised reverse WORKLOAD_P score and the population-standardised ADMIN_SUPP score. SMI is operationalised in the empirical model as a standardised administrative-capacity/coordination proxy using the annual number of administrators. The 0/1/2 scores are reported for transparency: 0 = lower third, 1 = middle third and 2 = upper third of the observed annual distribution, after reverse-coding where appropriate. Website-based items such as STAFF_DEV, PLAN_VIS, KPI_SYS, GOV_QA and GRAD_SYS were retained as contextual indicators only, because year-specific historical public coding could not be verified consistently across 2012–2023.

The rule-based coding was prepared by the data-curation author from the NCSI-derived numerical dataset and checked by a second author against the source values and formulae. No formal inter-rater reliability coefficient was calculated because the retained 0/1/2 scores were not subjective blind ordinal judgements; they were formula-based lower-, middle- and upper-tertile classifications of observed annual values. Ordinal website-based items were retained only for conceptual interpretation and were excluded from annual regression coding because historically consistent public evidence was not available.

Table A2. Correlation matrix for the empirical regression variables.

Variable	EWPI(t-1)	SMI(t-1)	Total-enrolment growth
EWPI(t-1)	1	0.445	0.158
SMI(t-1)	0.445	1	-0.539
Total-enrolment growth	0.158	-0.539	1

Note. The correlations are based on the seven usable sector-year observations used in the lagged exploratory regression models. They are reported descriptively because the sample is very small. EWPI(t-1) is the lagged employee well-being proxy index constructed from annual workload pressure and administrative support capacity. SMI(t-1) is the lagged strategic-management administrative-capacity proxy constructed from the annual number of administrators.