



Performance Evaluation Systems and Budgetary Slack in Chinese Universities: The Moderating Effect of Financial Transparency

Jie Gao, Zulnaidi Yaacob*

Management Section, School of Distance Education, Universiti Sains Malaysia, Penang, Malaysia. *Email: zulnaidi@usm.my

Received: 10 March 2026

Accepted: 11 July 2026

DOI: <https://doi.org/10.32479/irmm.24045>

ABSTRACT

Chinese universities increasingly operate under performance-oriented funding regimes with tighter fiscal constraints and stronger accountability requirements. These conditions may lead to budgetary slack when budget holders possess private information relative to central finance offices. This article investigates whether performance evaluations reduce budgetary slack, both directly and by promoting financial transparency. It also examines if transparency makes these evaluations more effective at reducing slack. This study employed a quantitative, cross-sectional survey design in Chinese universities. A bilingual (English-Chinese) questionnaire using a five-point Likert scale was administered to personnel involved in budgeting and financial management (central finance office staff, school/college administrators, department heads, and research administration personnel). A total of 400 valid responses were analyzed using partial least squares structural equation modelling (PLS-SEM) with bootstrapping (5,000 resamples). The PLS-SEM results indicate that performance evaluation systems are positively associated with financial transparency and negatively associated with budgetary slack. Financial transparency is also negatively related to slack and significantly strengthens the slack-reducing effect of performance evaluation systems. Overall, the model explains a substantial proportion of variance in budgetary slack ($R^2 = 0.347$), and the measures demonstrate satisfactory reliability as well as convergent and discriminant validity. The study integrates management control and public-sector transparency perspectives by modelling financial transparency as both a governance mechanism and a boundary condition for the effectiveness of performance evaluation. Practically, performance-oriented budgeting reforms are unlikely to curb slack if transparency of allocation rules, execution reports, and adjustment rationales remains weak.

Keywords: Performance Evaluation Systems, Budgetary Slack, Financial Transparency, Chinese Universities, PLS-SEM, Budget Governance

JEL Classifications: M41, H61, H83, I23

1. INTRODUCTION

Chinese universities face sustained pressure to demonstrate effectiveness, efficiency, and accountability in the use of public funds, particularly under performance-based budgeting and budget performance management reforms (He and Ismail, 2023; Jiang and Chi, 2024). Yet universities are decentralized professional bureaucracies: Schools and departments hold local information about needs and costs, while central finance offices must allocate resources and enforce rules. This information asymmetry creates scope for budgetary slack, the deliberate inflation of expenditure

requests or understatement of feasible targets, which can distort allocation decisions and reduce comparability across units (Batt, 2025; Douthit et al., 2022).

Recent research treats slack and budget misreporting as strategic behaviors shaped by incentives, monitoring, communication channels, and perceived detection risk (Deore et al., 2023; Douthit et al., 2022; Way, 2022; Ressi et al., 2025). In universities, budget requests are often justified through program narratives and academic agendas rather than market signals, and monitoring capacity is uneven across units. Accordingly, the behavioural

impact of performance evaluation systems depends not only on whether indicators exist, but also on how performance and budget information are generated, shared, and used in budgeting conversations.

Financial transparency, accessibility, clarity, and timeliness of budget rules, allocations, execution reports, and adjustment rationales, is a related but distinct governance mechanism. By reducing information asymmetry and widening internal scrutiny, transparency can raise the expected costs of opportunistic reporting and strengthen accountability (Chen and Ganapati, 2023; Cuadrado-Ballesteros and Bisogno, 2022). Transparency effects are stronger when disclosures are usable and interpretable rather than merely symbolic (Lnenicka and Nikiforova, 2021; Xiao and Wang, 2024). Evidence from public finance research links higher fiscal transparency to stronger governance environments and improved perceptions of corruption control (Chen and Ganapati, 2023; Montes and Luna, 2021).

This article develops and tests a governance model linking performance evaluation systems (PES), financial transparency (FT), and budgetary slack (BS) in Chinese universities using survey data and PLS-SEM. FT is theorized to play a dual role: (1) As a mechanism through which PES promotes more observable and verifiable budgeting (mediation), and (2) As a boundary condition that amplifies the slack-reducing effect of PES by widening monitoring capacity and lowering information asymmetry (moderation). Modelling FT as both mediator and moderator is conceptually appropriate when the same governance attribute can both transmit and condition effects in a control system.

The study addresses four research objectives: (RO1) examine the direct effect of PES on BS; (RO2) examine whether PES is associated with higher FT; (RO3) test the effect of FT on BS; and (RO4) test whether FT strengthens the relationship between PES and BS. These objectives are operationalized as hypotheses H₁-H₄.

The remainder of the article reviews the key constructs and develops hypotheses, describes the research methodology, reports the empirical results, discusses implications for budgeting governance in Chinese universities, and concludes.

1.1. Performance Evaluation Systems

Performance evaluation systems (PES) in university budgeting refer to the formal routines and criteria used to establish targets, define indicators, collect and analyze performance information, and feed results into accountability processes and resource allocation decisions. In management control terms, PES shape what is measured, how results are interpreted, and how consequences are attached to budget execution outcomes.

Two theoretical lenses are central. From an agency perspective, PES can mitigate opportunistic reporting by increasing observability and the perceived probability of detection, thereby reducing the expected benefits of budget padding (Daumoser et al., 2018; Douthit et al., 2022). From an information and decision-usefulness perspective, PES create demand for credible,

comparable information that supports learning and corrective action. However, when evaluation is perceived as coercive, poorly specified, or inconsistently applied, it can trigger defensive behaviour and gaming rather than truthful reporting (Arnold and Artz, 2019; van der Kolk et al., 2019).

In Chinese universities, performance management reforms have expanded the use of indicators and post-audit reviews in budgeting (He and Ismail, 2023; Jiang and Chi, 2024). Given decentralization and heterogeneous activities across departments, the slack-reducing effect of PES is expected to depend on complementary governance conditions, especially the transparency of budget rules and execution information that enables verification and cross-unit comparison.

1.2. Budgetary Slack

Budgetary slack is commonly defined as the intentional biasing of budget proposals or targets, typically overstating expected expenditures or understating achievable revenues, to make performance easier or to create discretion during implementation. While limited buffers may be defensible under genuine uncertainty, systematic slack is widely treated as a governance problem because it weakens allocative efficiency and undermines the evaluative function of budgets (Daumoser et al., 2018; Douthit et al., 2022).

Universities are especially prone to slack because they are multi-output organizations with complex and partly qualitative objectives. Budget requests often rely on professional judgement and program narratives that are difficult for finance staff to verify without specialized knowledge. These conditions increase reliance on internal controls and information-sharing arrangements to discipline reporting behaviour.

Recent evidence highlights that slack and misreporting respond to monitoring environments, perceived fairness, and communication structures (Gallani et al., 2019; Way, 2022; Ressi et al., 2025). Accordingly, the present model treats slack as a behavioural outcome shaped jointly by the strength of performance evaluation systems and the transparency of the budgeting information environment.

1.3. Financial Transparency

Financial transparency refers to the availability, clarity, timeliness, and interpretability of budget-related information for relevant stakeholders. In a university context, this includes transparent allocation criteria, access to execution reports, disclosure of material budget adjustments with reasons, and sharing of audit or supervision information where appropriate.

The behavioural logic of transparency is primarily informational: when allocations and outcomes are observable and comparable, information asymmetry decreases, and the expected reputational and administrative costs of opportunistic reporting rise (Chen and Neshkova, 2020; De Simone et al., 2017). However, transparency is effective only when information is usable; otherwise, disclosure can create overload or symbolic compliance without meaningful scrutiny (Matheus and Janssen, 2020).

In Chinese public-sector settings, performance management reforms and evolving disclosure requirements have increased attention to transparency practices (Jiang and Chi, 2024; Xiao and Xu, 2020; Xiao and Wang, 2024). Within universities, financial transparency can therefore be viewed as a complementary governance capability that both supports the operation of performance evaluation systems and constrains slack-creating opportunities in budgeting.

2. LITERATURE REVIEW AND HYPOTHESIS DEVELOPMENT

Prior research on budgeting and management control indicates that slack and misreporting are shaped by the joint design of performance evaluation systems (PES) and the surrounding information environment. Experimental evidence shows that control choices, monitoring authority, and the broader control package affect budgetary slack outcomes and reporting honesty (Douthit et al., 2022; Deore et al., 2023). However, research on performance management cautions that directive, high-stakes evaluation regimes can trigger gaming and selective disclosure when measures are used for consequential decisions (Aboubichr and Conway, 2023). Transparency research provides a complementary perspective by emphasizing how accessible, timely, and interpretable financial information widens scrutiny and constrains opportunism, and how digital access to public data can strengthen transparency by breaking down information barriers (Lnenicka and Nikiforova, 2021; Chen and Ganapati, 2023; Han et al., 2025). Building on these streams, the hypotheses below specify direct effects of PES and financial transparency (FT) on budgetary slack, as well as the moderating role of FT in strengthening the slack-reducing effect of PES.

2.1. Performance Evaluation Systems and Budgetary Slack

Performance evaluation systems can curb slack by clarifying what counts as acceptable budget execution and by increasing accountability for results. Experimental evidence in budgeting shows that when superiors possess credible discretion to accept or reject submitted budgets, slack is lower, underscoring the disciplining role of evaluative review and monitoring authority (Douthit et al., 2022). More broadly, evidence from management control research indicates that integrity-oriented mission cues can interact with budgeting controls to increase honesty in internal reporting, implying that evaluation systems embedded in a coherent control package can reduce strategic misreporting (Deore et al., 2023).

At the same time, performance management research shows that highly directive evaluation regimes can encourage gaming behaviours (e.g., selective attention, hoarding performance, and manipulation of outputs) when indicators are used for consequential decisions (Aboubichr and Conway, 2023). Similarly, evidence on budget target setting suggests that certain target-setting approaches can induce unethical behaviours for the organization, consistent with defensive or opportunistic reporting incentives under pressure (Fukushima and Yamada, 2024). This study therefore assumes that

PES are sufficiently credible and procedurally fair to discipline, rather than amplify, gaming. Evidence on enabling versus coercive performance measurement indicates that enabling system designs and participatory development processes increase perceived procedural fairness and reduce perceived red tape (Van Veen-Dirks et al., 2021), conditions that are consistent with more constructive budgeting conversations and less defensive slack creation.

H₁: Performance evaluation systems have a negative effect on budgetary slack.

2.2. Performance Evaluation Systems and Financial Transparency

Performance evaluation is information intensive. When evaluation results are used in consequential decisions, organizations have stronger incentives to document allocation criteria, standardize reporting, and communicate deviations with defensible rationales. In the Chinese public-university context, evidence on staff capacity and performance-based budgeting reforms suggests that stronger performance management routines are associated with improved budgeting practices and organisational performance, implying a closer link between evaluation systems and transparent reporting processes (He and Ismail, 2023; Jiang and Chi, 2024).

This association is also consistent with a transparency-by-design and organisational learning view: repeated evaluation cycles generate questions about why performance differs across units, which in turn requires traceable and interpretable financial information. Research on open data infrastructures highlights that transparency depends on the usability of information and the design of the information portal, not merely disclosure in principle (Lnenicka and Nikiforova, 2021; Fang et al., 2024; Xiao and Wang, 2024). Related budgeting research also shows that sophisticated data infrastructure is positively associated with the use of business analytics in budgeting, underscoring the importance of information-system capability for producing timely and usable budget information (Bergmann et al., 2020).

H₂: Performance evaluation systems have a positive effect on financial transparency.

2.3. Financial Transparency and Budgetary Slack

Transparency can reduce slack by lowering information asymmetry and enabling scrutiny of requests, execution rates, and justifications for deviations. Meta-analytic evidence indicates that transparency mechanisms are associated with reductions in corruption (an opportunism analogue), consistent with a deterrence logic whereby visibility raises the expected costs of opportunistic behaviour (Chen and Ganapati, 2023). Within internal reporting environments, experimental evidence shows that openness of internal reporting and shared interests shape collusion and misreporting incentives (Way, 2022), suggesting that transparency can influence slack creation through perceived detection risk and social comparison.

Because transparency also shapes expectations about audit follow-up and peer comparison, higher transparency is expected to be associated with lower slack in university budgeting contexts.

Recent evidence links improved public data access to higher fiscal transparency by increasing accountability and breaking down information barriers (Han et al., 2025). Cross-country work similarly finds that fiscal transparency is associated with stronger governance environments and improved perceptions of corruption control (Montes and Luna, 2021), reinforcing the expectation that transparency constrains opportunistic budget padding.

H₃: Financial transparency has a negative effect on budgetary slack.

2.4. Moderating Role of Financial Transparency

The effect of performance evaluation systems on slack should depend on the information environment in which evaluation operates. When budget information is opaque, evaluation routines can become ceremonial: Indicators exist, but stakeholders lack the information needed to verify claims, compare units, and challenge biased proposals. Transparency-by-design research shows that the design features of information infrastructures and open data portals shape whether disclosed information is actually usable for monitoring and accountability (Lnenicka and Nikiforova, 2021; Fang et al., 2024). Relatedly, evidence from emergency fiscal reporting highlights persistent gaps in the timeliness and completeness of disclosure, illustrating why transparency quality matters for accountability (Xiao and Wang, 2024).

Accordingly, financial transparency is expected to amplify the slack-reducing effect of performance evaluation systems. This complementarity is consistent with evidence that transparency mechanisms can strengthen accountability and reduce opportunism (Chen and Ganapati, 2023), and with cross-country findings that higher budget transparency is associated with stronger public-sector financial sustainability, suggesting that transparency is not merely symbolic but can support more disciplined fiscal decision-making (Cuadrado-Ballesteros and Bisogno, 2022).

H₄: Financial transparency negatively moderates the relationship between performance evaluation systems and budgetary slack, strengthening the slack-reducing effect of performance evaluation systems when transparency is higher.

2.5. Research Gap

The present study addresses three gaps. First, university budgeting remains under-represented in empirical slack research despite the sector's scale and complex agency relations. Second, studies of

performance-based budgeting in Chinese universities have focused largely on implementation conditions and performance outcomes, with less attention to strategic behaviour such as slack. Third, transparency has been studied mainly as an external attribute of governments; less is known about internal financial transparency in large public organizations and how it conditions the effectiveness of management control systems.

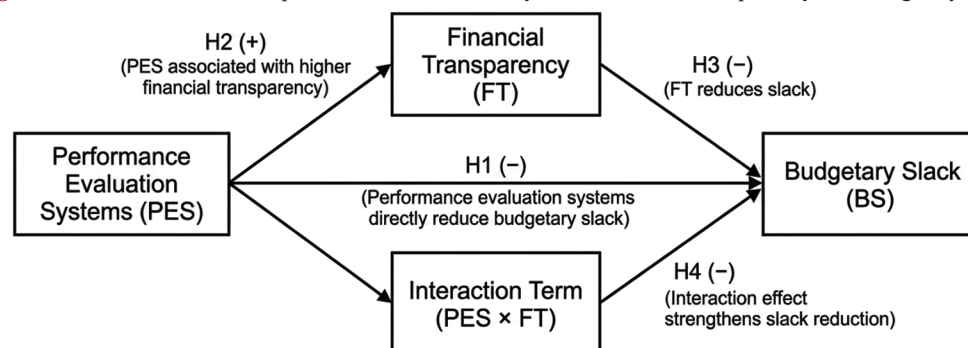
2.6. Theoretical Model

Figure 1 presents the theoretical model. Performance evaluation systems are expected to reduce budgetary slack directly (H₁) and to be associated with higher financial transparency (H₂). Financial transparency is expected to reduce slack (H₃) and to strengthen the slack-reducing effect of performance evaluation systems via an interaction effect (H₄). Specifying financial transparency as both a mediator (PES → FT → BS) and a moderator (PES × FT → BS) reflects a governance complementarity logic: transparency can be improved through evaluation-driven reporting demands, and at the same time it conditions how effectively evaluation can discipline budgeting behaviour by widening monitoring capacity and reducing information asymmetry (Benitez et al., 2020; Hair et al., 2021).

This study demonstrates that performance evaluation systems (PES) serve as a critical mechanism for mitigating budgetary slack, both directly and indirectly through the enhancement of financial transparency. Consistent with agency theory, our findings indicate that PES reduces information asymmetry between managers and superiors. By establishing clear metrics and accountability, these systems limit the opportunity for managers to underestimate revenue or overestimate costs, thereby directly constraining the creation of budgetary slack. This confirms that formal control mechanisms are essential for aligning managerial behavior with organizational goals.

Beyond the direct effect, a key contribution of this research is identifying the mediating role of financial transparency. The results suggest that the implementation of rigorous evaluation systems inherently demands better data visibility. As organizations improve their evaluation processes, they are compelled to increase financial transparency, which subsequently acts as a “disinfectant” against slack. This indirect pathway highlights that PES does not operate in a vacuum; its effectiveness is partly due to the environment of openness it fosters, where hidden resources become difficult to conceal.

Figure 1: Theoretical model of performance evaluation systems, financial transparency, and budgetary slack



Furthermore, the analysis reveals a significant moderating effect, showing that financial transparency functions as a catalyst for performance evaluation systems. The interaction between PES and transparency suggests that evaluation systems are most effective when supported by high levels of information openness. In environments with low transparency, even robust evaluation systems may struggle to detect slack due to “information fog.” Conversely, when financial data is transparent, the disciplinary power of PES is amplified, as managers are aware that their performance is being judged against accurate, undeniable data.

3. RESEARCH METHODOLOGY

3.1. Research Design and Context

This study is a quantitative, cross-sectional survey conducted in mainland China to examine how performance evaluation systems influence budgetary slack in public universities, and whether financial transparency moderates this relationship. The study population comprised central finance officers and budget administrators across public universities, as these roles are directly involved in performance assessment and budgeting processes.

3.2. Instrument Development

Measurement items were developed based on recent research on (i) Performance-based budgeting and performance management in higher education, (ii) Budgeting-related misreporting/slack behaviors in organizations, and (iii) Fiscal transparency/open-data reforms and their governance implications (He and Zhang, 2024; Fukushima and Yamada, 2024; Lill et al., 2024; Batt, 2025; Xiao and Wang, 2024; Liu and Chen, 2024; Han et al., 2025; Li et al., 2026). The questionnaire comprised items on performance evaluation systems, budgetary slack, financial transparency, and relevant control variables. Unless otherwise stated, all items were measured on a 5-point Likert scale (1 = strongly disagree to 5 = strongly agree).

3.3. Translation Procedure

Given the Chinese-language survey context, the instrument was developed in English and translated into Chinese following recent guidance on translation and cross-cultural adaptation of survey instruments (Benlidayi and Gupta, 2024; Duc et al., 2025). A bilingual expert panel performed forward translation, followed by independent back-translation to check semantic and conceptual equivalence. Discrepancies were reconciled through panel discussion, and a small pilot test was used to confirm clarity and appropriateness before full deployment.

3.4. Data and Analysis Workflow

The final dataset was screened for missingness and response quality prior to analysis. We used SmartPLS 4 to estimate the measurement and structural models using partial least squares structural equation modeling (PLS-SEM), which is widely used for complex models and prediction-oriented objectives (Gudergan et al., 2025; Guenther et al., 2025). The measurement model evaluation followed recent methodological discussions and reporting guidance for reflective constructs, including

indicator reliability, internal consistency, convergent validity, and discriminant validity checks (Liengard, 2024; Gudergan et al., 2025). The structural model was assessed via bootstrapped path coefficients (5,000 subsamples), significance tests, and explanatory power metrics (e.g., R^2 and f^2).

3.5. Ethical Considerations

Participation was voluntary, and all respondents were informed about the purpose of the study and their right to withdraw at any time. Confidentiality and anonymity were ensured, and responses were collected and analyzed in aggregate form.

3.6. Sampling Strategy

To capture heterogeneity in budgeting practices, the sample included universities of varying sizes and administrative levels. An online survey link was distributed through professional networks and university finance offices. Reminders were sent to improve response rates, and no personally identifiable information was collected.

3.7. Common Considerations for Methods

Survey-based designs can be susceptible to common method bias. Accordingly, we implemented procedural remedies (e.g., anonymity assurances, careful item wording, and separating construct blocks) and complemented them with statistical diagnostics consistent with recent syntheses of common method bias and remedies (Podsakoff et al., 2024). We also checked the robustness of key inferences in multivariate specifications that include multiple predictors, which can reduce bias attributable to common method variance (Sturman et al., 2025).

3.8. Moderation Estimation

In PLS-SEM, moderation can be estimated using product-indicator or two-stage approaches. Consistent with recent recommendations for reflective constructs and interaction modeling in PLS-SEM, the study applied a two-stage approach to estimate the interaction between performance evaluation systems and financial transparency (Gudergan et al., 2025; Guenther et al., 2025). We report the interaction term's significance and plot simple slopes to interpret the conditional effect.

3.9. Predictive Assessment

In addition to explanatory model evaluation, we conducted out-of-sample predictive checks and model comparison using cross-validated predictive procedures (Capeau et al., 2024). Predictive performance was summarized using standard prediction-error metrics (e.g., RMSE/MAE) and compared across cross-validation folds to assess practical relevance and robustness.

3.10. Sample Profile

The final sample comprised 400 complete responses from central finance office personnel (32.0%), school/college administrators (28.25%), department heads (21.50%), and research administration personnel (18.25%) (Table 1). Because the survey was disseminated through multiple channels, an exact response rate could not be calculated for all invitations. Table 2 presents descriptive statistics for the latent constructs (five-point Likert scale).

Table 1: Demographic profile of respondents
(survey sample, n=400)

Variable	Category	Frequency	Percentage
Gender	Female	216	54
Gender	Male	184	46
Age group	35-44	147	36.75
Age group	25-34	129	32.25
Age group	45-54	90	22.5
Age group	55+	34	8.5
Experience years	5-9	132	33
Experience years	<5	117	29.25
Experience years	10-14	92	23
Experience years	15+	59	14.75
Role	Finance office	128	32
Role	School/College admin	113	28.25
Role	Department Head	86	21.5
Role	Project PI/Research admin	73	18.25
University type	Provincial public	223	55.75
University type	Double first-class	92	23
University type	Private	47	11.75
University type	Applied/Vocational	38	9.5
Region	East	212	53
Region	West	89	22.25
Region	Central	73	18.25
Region	Northeast	26	6.5

Table 2: Descriptive statistics for the latent constructs
(five-point Likert scale)

Construct	Mean	Standard deviation
PES	2.986	1.187
FT	2.986	1.198
BS	3.032	1.232

3.11. Measurement Items

Table 3 presents the bilingual English-Chinese measurement items used to operationalize performance evaluation systems, financial transparency, and budgetary slack.

4. RESULTS

We screened the data and computed descriptive statistics. All 400 cases were complete. Construct means suggest moderate levels of performance evaluation and financial transparency and moderate perceived budgetary slack. The measurement model demonstrates satisfactory reliability and convergent and discriminant validity.

4.1. Variables Reliability and Validity

4.1.1. Convergent validity and reliability

Tables 4 and 5 presents indicator loadings as well as construct reliability measures. All loadings are above the generally accepted threshold of 0.70, which means that the fitness measures have significant variance in common with their respective constructs. Cronbach's alpha and composite reliability of >0.87 for all constructs and average variance extracted (AVE) of >0.67, manifested in convergent validity. These results are in line with recommended criteria for reflective measurement models in PLS-SEM (Henseler, 2018; Benitez et al., 2020).

4.2. Estimated Model

Figure 2 shows the estimated model (result of PLS algorithm) with outer loadings, path coefficients and R^2 values. Performance evaluation systems have a positive association in predicting financial transparency ($\beta = 0.504$), Budgetary slack is explained by performance evaluation systems, financial transparency and interaction of financial transparency and performance evaluation systems ($R^2 = 0.347$).

4.3. Measurement Items Fitness Statistics

Collinearity diagnostics. Table 6 reports on indicator variance inflation factors (VIF) alongside loads. $VIF < 3$ for all indicators - Indicators within measurement blocks show no problematic collinearity. For the structural model, value of VIF of predictor seeks also values below thresholds widely used in research and suggests that multicollinearity is unlikely to cause bias on estimation of the paths (Benitez et al., 2020).

4.4. Discriminant Validity

Discriminant validity is measured by the Fornell-Larcker criterion and the HTMT. Tables 7 and 8 indicate that the square root of AVE for each construct is larger than its correlations with any other constructs supporting Fornell-Larcker discriminant validity. HTMT values are <0.85 which is further evidence for discriminant validity and in line with modern recommendations for assessing the quality of a measure for PLS-SEM (Henseler, 2018; Benitez et al., 2020).

4.5. Variables Effects Overview

Tables 9 and 10 summarize the results of hypothesis testing. Performance evaluation systems have a negative and significant effect on the level of budgetary slack ($\beta = -0.359$, $P < 0.001$). Financial transparency has a negative and significant impact on slack as well ($\beta = -0.283$, $P < 0.001$). The interaction effect is negative and significant ($\beta = -0.140$, $P < 0.001$), which shows that financial transparency increases the slack-reducing effects of the performance evaluation systems. The positive relationship between performance evaluation systems and financial transparency ($\beta = 0.504$) is consistent with H_2 .

The structural model for performing path analysis with bootstrapping t-values is shown in Figure 3. The obtained t-values show that all structural paths and indicator loadings are statistically significant, which supports the robustness of the measurement and structural estimates.

4.6. R^2 Statistics and Model Goodness of Fit Statistics

Detailed results of explained variance R^2 and effect sizes f^2 are given in Table 10. The variance in financial transparency and budgetary slack is respectively explained by the proposed model by 25.4% and 34.7%. Based on effect sizes, the systems of evaluating performance have a medium effect on transparency and a meaningful effect on slack. Financial Transparency has a meaningful effect on slack. The interaction has a small to moderate incremental effect. Model fit indices (SRMR and d_ULS) are reported to complete this. In a just-identified latent variable model at the construct level, the saturated and

Table 3: Bilingual questionnaire measurement items (English and Chinese)

Construct	Code	English item	Chinese item
PES	PES1	Our university uses clear and documented performance indicators when evaluating budget execution.	学校在评估预算执行时使用清晰且有书面记录的绩效指标
PES	PES2	Budget targets are linked to performance evaluation results and managerial feedback.	预算目标与绩效评价结果以及管理反馈相联系
PES	PES3	Performance evaluations of budget responsibility centers are carried out regularly (for example, each quarter or semester).	对预算责任中心的绩效评价定期开展（例如每季度或每学期）
PES	PES4	Performance evaluation standards are applied consistently across departments.	绩效评价标准在各部门之间一致执行
PES	PES5	Performance evaluation results are used to improve future budgeting and resource allocation decisions.	绩效评价结果用于改进未来预算编制与资源配置决策
FT	FT1	Departments can access timely information on budget allocations and budget execution.	各部门能够及时获取预算分配与预算执行信息
FT	FT2	Budget rules and allocation criteria are communicated clearly to internal stakeholders.	预算规则与分配标准对内部利益相关者解释清晰
FT	FT3	Material budget adjustments are disclosed with reasons and supporting information.	重大预算调整会披露原因及相关支撑信息
FT	FT4	Internal audit or supervision reports related to financial management are shared transparently within the university.	与财务管理相关的内部审计或监督报告在校内透明共享
FT	FT5	Financial reports are easy to understand and allow meaningful comparison across periods.	财务报告易于理解，并便于跨期比较
BS	BS1	When preparing budgets, units sometimes overstate expected expenditures to create a cushion.	在编制预算时，部门有时会高估预计支出以形成“缓冲
BS	BS2	When proposing revenue or income targets, units sometimes understate achievable amounts.	在提出收入或创收目标时，部门有时会低估可实现水平
BS	BS3	Budget proposals sometimes include safety margins that are not fully justified by operational needs.	预算方案有时包含难以用业务需要充分解释的安全边际
BS	BS4	Units sometimes negotiate for easier budget targets than they could realistically achieve.	部门有时会争取比实际可达到水平更容易的预算目标

Table 4: Indicator loadings, convergent validity, and measurement reliability

Construct	Indicator	Loading	VIF
PES	PES1	0.81	1.943
PES	PES2	0.825	2.07
PES	PES3	0.83	2.116
PES	PES4	0.82	2.021
PES	PES5	0.834	2.155
FT	FT1	0.822	2.042
FT	FT2	0.813	1.968
FT	FT3	0.837	2.191
FT	FT4	0.818	2.015
FT	FT5	0.823	2.055
BS	BS1	0.84	2.024
BS	BS2	0.879	2.531
BS	BS3	0.84	2.028
BS	BS4	0.848	2.146

Table 5: Construct reliability and average variance extracted

Construct	Cronbach's Alpha	Composite reliability	AVE
PES	0.882	0.914	0.679
FT	0.881	0.913	0.677
BS	0.874	0.914	0.726

Table 6: Indicator VIF and structural model VIF statistics

Predictor	VIF
PES	1.361
FT	1.341
INT	1.017

Table 7: Fornell-Larcker discriminant validity criterion

Construct	PES	FT	BS
PES	0.824	0.504	-0.519
FT	0.504	0.823	-0.469
BS	-0.519	-0.469	0.852

Table 8: HTMT discriminant validity statistics

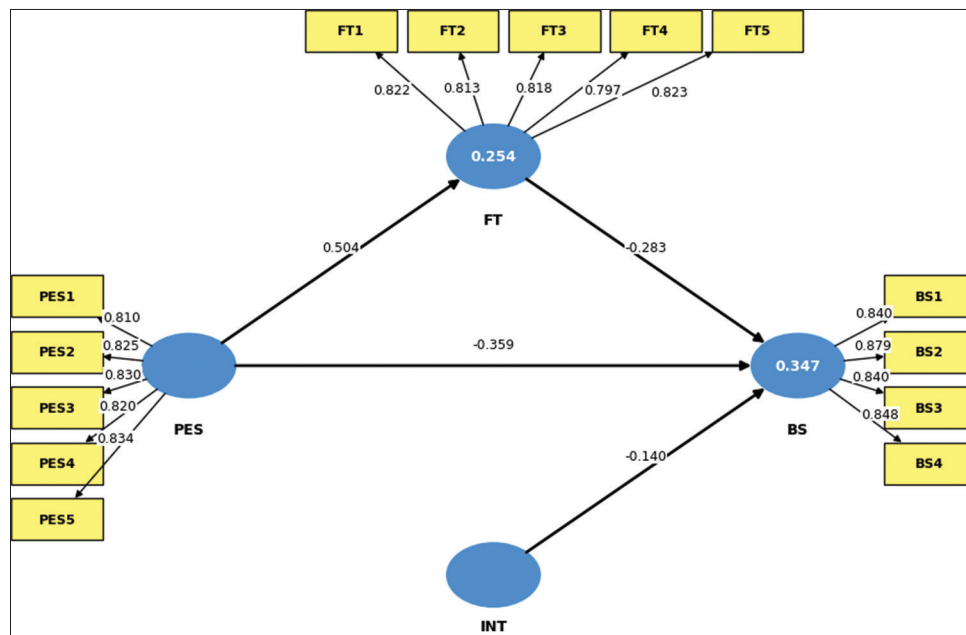
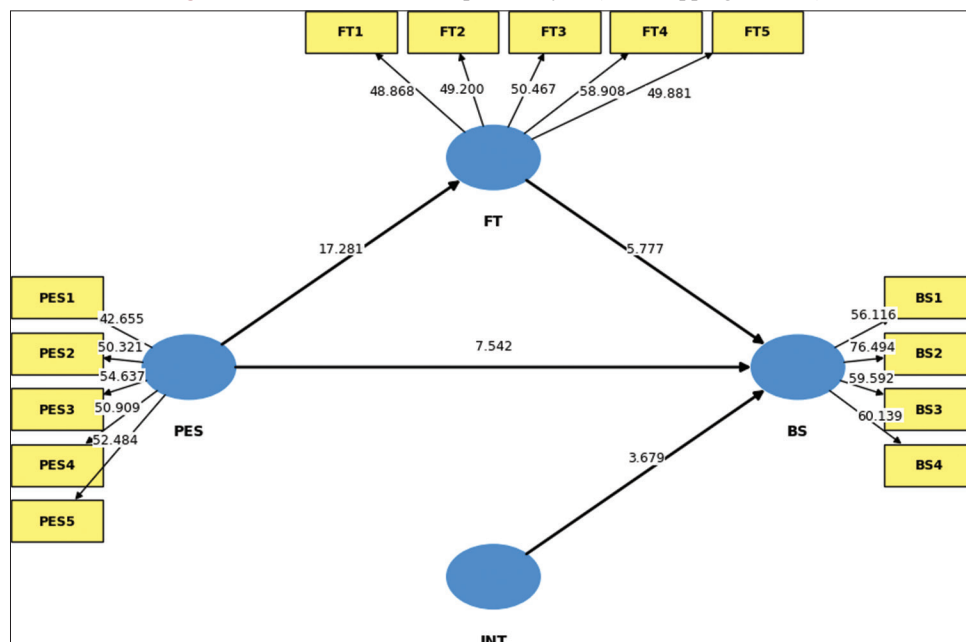
Construct A	Construct B	HTMT
PES	FT	0.572
PES	BS	0.592
FT	BS	0.534

recommended for the reporting of PLS-SEM (Shmueli et al., 2019; Liengaard et al., 2021).

4.7. Structural Model for Path Analysis

The structural model has three direct paths to budgetary slack, namely, performance evaluation systems, financial transparency, and the interaction term. Bootstrapping results (Table 11) show that the hypothesized direct effects are all statistically significant at conventionally significant levels, along with the moderation

estimated models may coincide, and this leads to similar fit indices. Accordingly, the fit statistics should be interpreted in a descriptive way, although the focus is always on measurement quality, explanatory power, and predictive assessment as is

Figure 2: Estimated model (PLS algorithm results)**Figure 3:** Structural model for path analysis (bootstrapping t-values)**Table 9: Hypotheses testing summary (paths and statistical significance)**

Hypothesis	Path	Expected sign	Beta	t-value	P-value	Decision
H ₁	PES→BS	Negative	-0.359	7.542	< 0.001	Supported
H ₂	PES→FT	Positive	0.504	Stage 1 (non-bootstrapped)	See Results text	Supported
H ₃	FT→BS	Negative	-0.283	5.777	< 0.001	Supported
H ₄	PES×FT→BS	Negative	-0.14	3.679	< 0.001	Supported

effect. The pattern of coefficients lends support to the view that performance evaluation and transparency are complementary rather than substitute forms of governance.

4.8. Path Analysis

H₁: Performance evaluation systems and budgetary slack. The negative coefficient indicates that stronger and more consistent

performance evaluation systems are associated with lower budgetary slack. Therefore, H₁ is supported.

H₂: Performance evaluation systems and financial transparency. The positive coefficient indicates that stronger performance evaluation systems are associated with higher perceived financial transparency. Therefore, H₂ is supported.

H₃: Financial transparency and budgetary slack. The negative

Table 10: R², effect size (f²), and model fit statistics

Endogenous construct	f ² (PES)	f ² (FT)	f ² (PES × FT)	R ²	Adjusted R ²
Financial transparency	0.34	—	—	0.254	0.252
Budgetary slack	0.145	0.091	0.03	0.347	0.342

Panel B. Model fit statistics		
Metric	Saturated model	Value
SRMR	0.050	0.050
d_ULS	0.226	0.226

Note: — = not applicable.

Table 11: Bootstrapped path coefficients for the structural model (5,000 resamples)

Path	Beta	Boot SE	T-value	P-value	CI 2.5%	CI 97.5%
PES->BS	-0.359	0.048	7.542	< 0.001	-0.453	-0.266
FT->BS	-0.283	0.049	5.777	< 0.001	-0.379	-0.187
PES×FT->BS	-0.14	0.038	3.679	< 0.001	-0.217	-0.067

coefficient indicates that higher financial transparency is associated with lower budgetary slack. Therefore, H₃ is supported.

H₄: Moderating effect of financial transparency. The negative interaction coefficient indicates that financial transparency strengthens the slack-reducing effect of performance evaluation systems. Therefore, H₄ is supported.

5. DISCUSSION

The findings address the four research objectives and support a governance complementarity interpretation of budgeting reforms in Chinese universities: Performance evaluation systems matter, but their behavioural effectiveness is amplified when budget information is transparent and usable.

- RO1/H₁ (PES → BS): Stronger performance evaluation systems are associated with lower slack, consistent with agency-based arguments that clearer expectations and accountability reduce the benefits of opportunistic budget padding. In university settings, this effect is particularly relevant because decentralized units hold private information and central oversight is costly.
- RO2/H₂ (PES → FT): Performance evaluation systems are positively associated with financial transparency. This suggests that consequential evaluation creates demand for documented rules, standardized reporting, and defensible rationales for allocation and adjustment decisions.
- RO3/H₃ (FT → BS): Financial transparency is negatively associated with slack. When allocation criteria and execution outcomes are visible and comparable, units face greater scrutiny and have fewer opportunities to justify inflated requests through private narratives.
- RO4/H₄ (PES × FT → BS): The significant interaction indicates that transparency strengthens the slack-reducing effect of evaluation. This is consistent with the view that evaluation routines can become ceremonial under opacity, whereas transparency widens monitoring capacity and increases the verifiability of budget claims.

It is noteworthy that transparency plays a dual role here. While it acts as a moderator (enhancing the efficacy of evaluation), our results for H₂ also indicate that effective evaluation systems proactively foster greater transparency (Path = 0.504). Thus, transparency serves as both a mechanism transmitted by the evaluation system and a contextual amplifier of its results.

- Theoretical implications: By modelling financial transparency as both a mechanism (PES → FT → BS) and a boundary condition (PES × FT), the study integrates management control and public-sector transparency perspectives and highlights that internal information environments shape the returns to performance management reforms.
- Practical implications: Reforms that focus only on performance indicators are unlikely to curb slack unless universities also institutionalize transparent allocation rules, accessible execution dashboards, and disclosure of material adjustments with clear rationales. Because transparency is not costless, implementation should prioritize interpretability (not merely disclosure) and embed feedback channels so information supports learning and accountability.

6. CONCLUSION

Using survey evidence from 400 respondents in Chinese universities, the study shows that performance evaluation systems are associated with lower budgetary slack and higher financial transparency, and that transparency both reduces slack and strengthens the slack-reducing effect of evaluation. Taken together, the results imply that performance-oriented budgeting reforms are more likely to curb slack when universities institutionalize transparent and interpretable budget rules, execution reporting, and adjustment rationales that widen monitoring capacity and reduce information asymmetry.

This study is limited by its cross-sectional, survey-based design, which restricts strong causal inference about the temporal ordering of performance evaluation systems, transparency practices, and slack-related behaviours. In addition, the measures are perceptual and self-reported; although appropriate for capturing internal governance conditions, responses may be affected by social desirability and common method bias. Future studies could use longitudinal designs and triangulate surveys with archival indicators (e.g., execution variances, audit findings) to strengthen causal interpretation.

The findings are also context-specific to Chinese universities. Although the sample covers multiple university types and regions, generalizability to other public-sector domains or national settings remains uncertain. Future research could employ comparative or multi-source designs, examine heterogeneity via multi-group analysis, and extend the model with additional boundary conditions emphasized in slack research (e.g., decentralization, perceived fairness, incentive intensity, and digitalization of budgeting systems).

REFERENCES

- Aoubichr, B., Conway, N. (2023), The gaming of performance management systems in British universities. *Human Relations*, 76(4), 602-628.

- Arnold, M.C., Artz, M. (2019), The use of a single budget or separate budgets for planning and performance evaluation. *Accounting, Organizations and Society*, 73, 50-67.
- Batt, C.E. (2025), Empirical budgeting research in accounting journals: Review, critique, and research agenda. *Accounting, Finance and Governance Review*, 34, 140425.
- Benitez, J., Henseler, J., Castillo, A., Schubert, F. (2020), How to perform and report an impactful analysis using partial least squares: Guidelines for confirmatory and explanatory IS research. *Information and Management*, 57(2), 103168.
- Benlidayi, I.C., Gupta, L. (2024), Translation and cross-cultural adaptation: A critical step in multi-national survey studies. *Journal of Korean Medical Science*, 39(49), e336.
- Bergmann, M., Brück, C., Knauer, T., Schwing, A. (2020), Digitization of the budgeting process: Determinants of the use of business analytics and its effect on satisfaction with the budgeting process. *Journal of Management Control*, 31, 25-54.
- Capeau, F., Valette-Florence, P., Cova, V. (2024), A consumer demands-resources model of engagement: Theoretical and managerial contributions from a cross-validated predictive ability test procedure. *Journal of Business Research*, 177, 114619.
- Chen, C., Ganapati, S. (2023), Do transparency mechanisms reduce government corruption? A meta-analysis. *International Review of Administrative Sciences*, 89(1), 257-272.
- Chen, C., Neshkova, M.I. (2020), The effect of fiscal transparency on corruption: A panel cross-country analysis. *Public Administration*, 98(1), 226-243.
- Cuadrado-Ballesteros, B., Bisogno, M. (2022), Budget transparency and financial sustainability: A research agenda. *Journal of Public Budgeting, Accounting and Financial Management*, 34(6), 210-234.
- Daumos, C., Hirsch, B., Sohn, M. (2018), Honesty in budgeting: A review of morality and control aspects in the budgetary slack literature. *Journal of Management Control*, 29(2), 115-159.
- De Simone, E., Gaeta, G.L., Mourão, P.R. (2017), The impact of fiscal transparency on corruption: An empirical analysis based on longitudinal data. *The B.E. Journal of Economic Analysis and Policy*, 17(4), 1-17.
- Deore, A., Gallani, S., Krishnan, R. (2023), The effect of systems of management controls on honesty in managerial reporting. *Accounting, Organizations and Society*, 105, 101401.
- Douthit, J.D., Schwartz, S.T., Stevens, D.E., Young, R.A. (2022), The effect of endogenous discretionary control choice on budgetary slack: An experimental examination. *Journal of Management Accounting Research*, 34(3), 99-118.
- Duc, N.T.M., Dila, K.A.S., Nguyen, D.H., Eltaybani S, Singal AG, Siddiqui AR, Piau-Louis, E., Fradelos, E.C., Ansar, F., Maselli, F., Han, H., Hill, J., Karbwang, J., Gupta, L., Verra, M.L., Karamouzian, M., Nair, R.C., Bronner, S., Adhikari, T.B., Tran, U.S., Havshøj, U., Hedley, D., Carpenter, D.M., Da Costa, F.A., Esposito, F., Rivet Amico, K., McInnes, M.D., Safdar, N., Vaghela, G., Huy, N.T. (2025), A checklist for translating and adapting questionnaires (CTAQ) in healthcare research: Insights from a Delphi method approach. *Tropical Medicine and Health*, 53, 154.
- Fang, J., Zhao, L., Li, S. (2024), Exploring open government data ecosystems across data, information, and business. *Government Information Quarterly*, 41(2), 101934.
- Fukushima, K., Yamada, A. (2024), Does budget target setting lead managers to engage in unethical behavior for the organization? *The British Accounting Review*, 56(4), 101218.
- Gallani, S., Krishnan, R., Marinich, E.J., Shields, M.D. (2019), Budgeting, psychological contracts, and budgetary misreporting. *Management Science*, 65(6), 2924-2945.
- Gudergan, S.P., Moisescu, O.I., Radomir, L., Ringle, C.M., Sarstedt, M. (2025), Special issue editorial: Advanced partial least squares structural equation modeling (PLS-SEM) applications in business research. *Journal of Business Research*, 188, 115087.
- Guenther, P., Guenther, M., Ringle, C.M., Zaefarian, G., Cartwright, S. (2025), PLS-SEM and reflective constructs: A response to recent criticism and a constructive path forward. *Industrial Marketing Management*, 128, 1-9.
- Hair, J.F., Hult, G.T.M., Ringle, C.M., Sarstedt, M., Danks, N.P., Ray, S. (2021), An introduction to structural equation modeling. In: Hair, J.F., Hult, G.T.M., Ringle, C.M., Sarstedt, M., Danks, N.P., Ray, S., editors. *Partial Least Squares Structural Equation Modeling (PLS-SEM) Using R: A Workbook*. Germany: Springer. p1-29.
- Han, N., Liu, P., Zhong, F., Zhao, D. (2025), Does public data access improve fiscal transparency? On a quasi-natural experiment from government data platform access. *Socio-Economic Planning Sciences*, 98, 102184.
- He, L., Ismail, K. (2023), Do staff capacity and performance-based budgeting improve organisational performance? Empirical evidence from Chinese public universities. *Humanities and Social Sciences Communications*, 10, 29.
- He, L., & Zhang, M. (2024), How political influence and financial pressure contribute to performance-based budgeting and university performance: Evidence from SEM and NCA. *SAGE Open*, 14(2), 1-17. <https://doi.org/10.1177/21582440241256637>
- Henseler, J. (2018), Partial least squares path modeling: Quo vadis? *Quality and Quantity*, 52(1), 1-8.
- Jiang, S., Chi, Y. (2024), Impact of budget performance management reform on local fiscal relief. *International Review of Economics and Finance*, 93, 905-918.
- Li, X., Zou, K., Liao, T. (2026), Fiscal transparency, public service provision, and criminal offense rates. *International Review of Financial Analysis*, 109, 104746.
- Liengaard, B.D. (2024), Measurement invariance testing in partial least squares structural equation modeling. *Journal of Business Research*, 177, 114581.
- Liengaard, B.D., Sharma, P.N., Hult, G.T.M., Jensen, M.B., Sarstedt, M., Hair, J.F., Ringle, C.M. (2021), Prediction: Coveted, yet forsaken? Introducing a cross-validated predictive ability test in partial least squares path modeling. *Decision Sciences*, 52(2), 362-392.
- Lill, J.B., Majerczyk, M.J., Xu, K. (2024), The joint effect of organizational identification and internal reporting environment openness on budgetary misreporting. *Journal of Management Accounting Research*, 36(2), 141-156.
- Liu, S., Chen, X. (2024), Impact of fiscal transparency on local fiscal revenue and expenditures: Evidence from a natural experiment. *Finance Research Letters*, 67, 105828.
- Lnenicka, M., Nikiforova, A. (2021), Transparency-by-design: What is the role of open data portals? *Telematics and Informatics*, 61, 101605.
- Matheus, R., Janssen, M. (2020), A systematic literature study to unravel transparency enabled by open government data: The window theory. *Public Performance and Management Review*, 43(3), 503-534.
- Montes, G.C., Luna, P.H. (2021), Fiscal transparency, legal system and perception of the control on corruption: Empirical evidence from panel data. *Empirical Economics*, 60(4), 2005-2037.
- Podsakoff, P.M., Podsakoff, N.P., Williams, L.J., Huang, C., Yang, J. (2024), Common method bias: It's bad, it's complex, it's widespread, and it's not easy to fix. *Annual Review of Organizational Psychology and Organizational Behavior*, 11, 17-61.
- Ressi, A., Schaupp, D., Van Pelt, V. (2025), What do you recommend? The effects of communication on misreporting in autonomous teams. *European Accounting Review*, 35, 737-761.
- Shmueli, G., Sarstedt, M., Hair, J.F., Cheah, J.H., Ting, H., Vaithilingam, S.,

- Ringle, C. M. (2019), Predictive model assessment in PLS-SEM: Guidelines for using PLSpredict. *European Journal of Marketing*, 53(11), 2322-2347.
- Sturman, M. C., Richardson, H. A., Simmering, M. J., & Ukhov, A. (2025). Simplifying common method variance mitigation: The role of additional variables. *Journal of Business and Psychology*. Advance online publication. <https://doi.org/10.1007/s10869-025-10074-z>
- Van der Kolk, B., Van Veen-Dirks, P.M.G., Ter Bogt, H.J. (2019), The impact of management control on employee motivation and performance in the public sector. *European Accounting Review*, 28(5), 901-928.
- Van Veen-Dirks, P.M.G., Leliveld, M.C., Kaufmann, W. (2021), The effect of enabling versus coercive performance measurement systems on procedural fairness and red tape. *Journal of Management Control*, 32(2), 269-294.
- Way, D. (2022), The effects of openness of internal reporting and shared interest with an employee on managerial collusion and subsequent cooperation. *Contemporary Accounting Research*, 39(4), 2456-2480.
- Xiao, H., Wang, X. (2024), Fiscal transparency practice, challenges, and possible solutions: Lessons from COVID-19. *Public Money and Management*, 44(3), 196-207.
- Xiao, H., Xu, J. (2020), The development of fiscal transparency in China: A critical review. In: Zang, X., Chan, H.S., editors. *Handbook of Public Policy and Public Administration in China*. United Kingdom: Edward Elgar Publishing. p150-167.