

Incentive-Oriented Financial Allocation and Resource Allocation Efficiency in Universities: The Mediating Role of Perceived Incentive Effectiveness in Jiangsu Province, China

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Abstract

Incentive-oriented financial reforms have become a central instrument in higher education governance, yet empirical evidence remains fragmented regarding *how* such mechanisms translate into resource allocation efficiency, particularly within centrally governed university systems. Existing studies have predominantly emphasized direct policy–performance linkages, overlooking the motivational mechanisms through which financial allocation rules are interpreted and enacted by institutional actors. Grounded in incentive theory, this study addresses this gap by examining the effects of performance-based financial allocation, transparency of allocation criteria, and strategic alignment of funding priorities on resource allocation efficiency, with perceived incentive effectiveness conceptualized as a key mediating mechanism. Using a quantitative design, survey data were collected from approximately 400 senior academic and administrative managers in public universities across Jiangsu Province, China. The proposed model was analyzed using partial least squares structural equation modeling (PLS-SEM) via Smart-PLS, enabling simultaneous assessment of measurement reliability, structural relationships, and mediation effects. The results indicate that performance-based financial allocation (H1: $t = 6.084, p < 0.001$), transparency of allocation criteria (H2: $t = 2.025, p = 0.043$), and strategic alignment of funding priorities (H3: $t = 4.908, p < 0.001$) significantly enhance perceived incentive effectiveness. While direct effects on resource allocation efficiency are mixed (H5 and H7 significant; H6 nonsignificant), perceived incentive effectiveness significantly mediates the relationships between performance-based allocation (H8: $t = 3.823, p < 0.001$; competitive partial mediation), transparency (H9: $t = 2.080, p = 0.038$; competitive partial mediation), and strategic alignment (H10: $t = 3.538, p < 0.001$; full mediation) and efficiency outcomes. The study contributes theoretically by advancing a mechanism-based explanation of incentive governance in higher education and practically by demonstrating that efficiency gains depend less on financial rules per se than on how incentives are perceived and internalized by institutional decision-makers.

Keywords: incentive theory; performance-based financial allocation; perceived incentive effectiveness; resource allocation efficiency; higher education governance; SEM-PLS; university finance; China higher education governance

Introduction

Higher education has increasingly been positioned as a strategic pillar for national innovation capacity, economic transformation, and global competitiveness, particularly in rapidly developing economies such as China. As the country advances toward a knowledge-driven development model under initiatives such as the “Double First-Class” university strategy, the efficiency with which financial resources are allocated within public universities has become a matter of national importance. Universities are no longer evaluated solely on academic prestige, but also on their ability to translate public funding into measurable teaching excellence, research productivity, and societal impact. Within this context, incentive-oriented financial allocation mechanisms—particularly those emphasizing performance-based funding, transparency, and strategic alignment—have emerged as critical governance tools for enhancing institutional efficiency and accountability (Y. Xu & Tang, 2025). For provinces such as Jiangsu, which hosts one of China’s most concentrated clusters of elite public universities and research-intensive institutions, optimizing financial resource allocation is essential for sustaining regional innovation ecosystems and supporting national development priorities. Despite substantial fiscal investment in higher education, China continues to face systemic challenges related to the effectiveness of university funding allocation mechanisms. Prior studies have indicated that traditional incremental budgeting practices, bureaucratic discretion, and opaque allocation criteria remain prevalent in many public universities, weakening the motivational impact of financial incentives and limiting resource utilization efficiency (Xu, 2025). In Jiangsu Province specifically, rapid expansion in university size, diversification of academic missions, and intensified competition for research excellence have further complicated internal financial governance. While performance-based funding policies have been formally introduced, inconsistencies in implementation, limited transparency in evaluation criteria, and misalignment between funding priorities and institutional strategies continue to undermine their intended outcomes (Matveeva, 2025). These issues highlight a growing tension between policy-level reform intentions and operational realities within public universities.

At the industry level, the higher education sector in Jiangsu Province faces mounting pressure to demonstrate efficiency, accountability, and strategic coherence in financial decision-making. Public universities are expected to balance teaching quality, research competitiveness, and social service obligations under increasingly constrained fiscal environments. However, misaligned funding priorities and weak incentive structures often result in suboptimal allocation of resources, duplication of investments, and underutilization of academic capacity (Liu, 2025). Moreover, when financial incentives are perceived as unattainable, unfair, or weakly linked to actual performance outcomes, they fail to motivate academic and administrative actors, thereby diminishing their potential impact on resource allocation efficiency. This problem is particularly acute at the managerial level, where senior academic and administrative leaders are tasked with translating funding policies into operational strategies while navigating institutional constraints.

Although existing studies have examined performance-based funding and resource efficiency in higher education, several critical research gaps remain. First, prior research has predominantly focused on policy design or macro-level funding outcomes, with limited empirical attention to the perceptual mechanisms through which financial allocation systems influence efficiency outcomes. Specifically, the mediating role of perceived incentive effectiveness—a core construct within Incentive Theory—has been largely overlooked in the higher education finance literature. Second, there is a notable population gap, as many studies rely on secondary data or student-level surveys, rather than capturing the perspectives of senior academic and administrative managers who possess direct knowledge of financial allocation processes. Third, a clear geographical gap exists, as empirical evidence from Jiangsu Province remains scarce despite its strategic importance in China’s higher education landscape. Addressing these gaps, the present study aims to examine how incentive-oriented financial allocation mechanisms influence resource allocation efficiency in public universities in Jiangsu Province, with perceived incentive effectiveness serving as a mediating mechanism.

This study offers several novel contributions to the literature. Methodologically, it advances higher education finance research by integrating Incentive Theory with a mediation-based quantitative framework, thereby unpacking the motivational pathways linking financial allocation mechanisms to efficiency outcomes. Practically, the findings provide evidence-based insights for policymakers and university leaders seeking to refine performance-based funding systems, enhance transparency, and improve strategic alignment of financial resources. By focusing on senior academic and administrative managers in Jiangsu Province, the study delivers context-specific recommendations that are directly relevant to governance reform in public universities. The remainder of this paper is structured as follows. The next section reviews the

relevant literature and develops the research hypotheses. This is followed by the methodology section outlining the research design, sampling, and analytical approach. The results section presents the empirical findings, while the discussion section interprets the results in light of theory and prior research. The final section concludes with implications, limitations, and directions for future research.

Research Problem Statement and Research Gap

The effectiveness of financial resource allocation has emerged as a critical governance challenge for public universities, particularly in systems characterized by large-scale public investment and strong state steering, such as China. Over the past decade, Chinese higher education has undergone substantial expansion and differentiation, accompanied by intensified government efforts to introduce performance-based funding and incentive-oriented allocation mechanisms aimed at improving efficiency and accountability (Cui, 2025). However, despite these reforms, empirical evidence consistently suggests that the conversion of financial inputs into high-quality teaching, research, and societal outputs remains uneven across institutions. This persistent inefficiency indicates that the mere introduction of incentive-oriented financial allocation mechanisms does not automatically guarantee improved resource allocation efficiency.

Prior studies have identified several structural and managerial problems underlying this issue. First, performance-based financial allocation systems are often implemented in a fragmented and symbolic manner, with limited alignment between funding indicators and actual institutional performance outcomes (Baker, 2024). In many public universities, financial rewards are weakly differentiated, short-term oriented, or insufficiently linked to meaningful academic contributions, thereby diluting their motivational impact. Second, a lack of transparency in allocation criteria has been widely reported, resulting in information asymmetry, perceived unfairness, and reduced trust in financial governance processes (Salehi et al., 2022). When academic and administrative managers are unable to clearly understand how and why financial resources are allocated, incentive mechanisms lose legitimacy and fail to guide efficient decision-making. Third, misalignment between funding priorities and long-term institutional strategies further exacerbates inefficiency, as resources are frequently distributed based on administrative convenience or historical precedent rather than strategic development goals (Liu, 2024).

Although the above problems are well documented, the existing literature reveals several critical research gaps that limit theoretical and practical understanding of incentive-oriented financial allocation in higher education. From a theoretical perspective, most prior studies have examined direct relationships between funding mechanisms and performance or efficiency outcomes, implicitly assuming that financial incentives exert uniform and objective effects across institutions (Kivistö & Mathies, 2023). This assumption overlooks a core proposition of Incentive Theory, which emphasizes that incentives influence behavior primarily through individuals' perceptions of their attractiveness, attainability, and fairness. Consequently, the mediating role of perceived incentive effectiveness remains underexplored in the higher education finance literature, particularly in explaining how financial allocation mechanisms translate into resource allocation efficiency.

From a methodological perspective, a substantial proportion of existing research relies on secondary data, policy analysis, or macro-level efficiency indicators, such as Data Envelopment Analysis (DEA), without incorporating managerial perceptions (Rella et al., 2025). While such approaches provide valuable system-level insights, they fail to capture the subjective yet influential evaluations of incentive effectiveness held by senior academic and administrative managers who are directly responsible for implementing financial allocation decisions. This omission represents a significant population gap, as managerial actors play a pivotal role in shaping how financial incentives are interpreted, operationalized, and ultimately transformed into efficiency outcomes.

In addition, there is a pronounced geographical and contextual gap in the literature. Empirical studies focusing specifically on Jiangsu Province remain scarce, despite the province's strategic importance as a hub of elite public universities, innovation-driven industries, and experimental higher education reforms. Jiangsu's universities operate under intense performance pressures and complex funding environments, making them an ideal context for examining incentive-oriented financial allocation and efficiency dynamics (Xing et al., 2022). The lack of province-level empirical evidence limits the contextual relevance of existing findings and constrains their policy applicability. Addressing these gaps, the present study seeks to systematically investigate the relationships between performance-based financial allocation, transparency of allocation criteria, strategic alignment of funding priorities, and resource allocation efficiency, with perceived incentive effectiveness serving as a mediating mechanism. By grounding the analysis in Incentive Theory and adopting a quantitative survey-based approach targeting senior academic and administrative managers in public universities in Jiangsu Province, this study directly responds to the identified theoretical, methodological, population, and geographical gaps. In doing so, it advances understanding of how and why incentive-oriented financial allocation mechanisms influence efficiency outcomes, rather than merely assessing whether such relationships exist. Importantly, this study contributes to problem resolution by offering evidence-based insights into the design and implementation of more effective financial incentive systems in public universities. By elucidating the mediating role of perceived incentive effectiveness, the findings provide actionable guidance for policymakers and university leaders seeking to enhance transparency, strengthen strategic alignment, and improve the motivational impact of performance-based funding. Ultimately, the study supports more efficient utilization of public financial resources, thereby contributing to the sustainable development and governance effectiveness of higher education institutions in Jiangsu Province and comparable contexts.

2.0 Literature Review

The present study is theoretically anchored in Incentive Theory, a core strand of motivation theory in management that explains how structured rewards and incentives shape individual and organizational behavior by influencing effort allocation, goal orientation, and performance outcomes. Incentive Theory posits that actors respond not merely to the existence of incentives but to their perceived effectiveness, which encompasses clarity, attainability, fairness, and alignment with valued outcomes. In the context of public sector organizations, particularly higher education institutions, incentive mechanisms are embedded within complex governance systems where financial rewards, performance evaluation, and strategic objectives intersect (Elo, 2025). In China, higher education is a strategically significant industry closely tied to national innovation capacity, talent development, and regional economic competitiveness. Consequently, the Chinese government has progressively introduced performance-based funding reforms, transparency requirements, and strategic steering mechanisms to enhance the efficiency and accountability of public universities (Li et al., 2024). Jiangsu Province represents a particularly salient context for examining Incentive Theory in action, as it hosts a dense concentration of high-performing public universities operating under strong fiscal oversight and performance pressure. Senior academic and administrative managers in these institutions function as key agents who interpret, implement, and respond to incentive-oriented financial allocation policies. Their perceptions of incentive effectiveness therefore constitute a critical mechanism through which government-driven financial reforms influence institutional resource allocation efficiency. Building on this theoretical foundation, the literature increasingly recognizes resource allocation efficiency (RAE) as a central outcome variable in higher education financial governance. RAE reflects the extent to which limited public financial inputs are transformed into high-quality teaching, research, and societal outputs, and it is widely used as an indicator of institutional sustainability and governance effectiveness (Chang et al., 2024). Recent studies suggest that inefficiencies in public universities are rarely attributable to funding shortages alone; rather, they stem from how financial resources are allocated, communicated, and strategically aligned (Gurick, 2024). Performance-based financial allocation (PBFA) has been promoted as a mechanism to improve efficiency by linking funding to measurable outputs, yet

empirical findings remain mixed. While some studies report positive efficiency effects, others highlight weak incentive intensity and symbolic compliance that limit behavioral change (Ezeogu, 2023). Similarly, transparency of allocation criteria (TAC) has been shown to reduce information asymmetry and enhance perceived fairness, which in turn strengthens managerial trust and decision quality (Bernard & Balog, 2025). Strategic alignment of funding priorities (SAFP) further conditions efficiency outcomes by ensuring that financial resources reinforce long-term institutional goals rather than fragmented or short-term objectives (Carreño, 2024). However, a critical limitation of prior research is its tendency to model these relationships as direct and mechanical, without adequately theorizing the psychological and perceptual processes through which financial allocation mechanisms exert their effects.

Recent empirical evidence increasingly supports the argument that perceived incentive effectiveness (PIE) plays a pivotal mediating role between financial allocation mechanisms and efficiency outcomes. Studies in both public administration and higher education contexts demonstrate that incentives only influence behavior when stakeholders perceive them as legitimate, attainable, and meaningfully linked to performance (Hill & Plimmer, 2024). In higher education institutions, senior managers' perceptions of incentive effectiveness shape budgeting decisions, departmental prioritization, and internal resource redistribution, thereby directly affecting RAE. Performance-based allocation systems that are poorly communicated or weakly differentiated tend to generate compliance-oriented behavior rather than efficiency-enhancing innovation (Amos, 2025). Likewise, transparency in allocation criteria enhances PIE by signaling procedural fairness, while strategic alignment reinforces PIE by clarifying the purpose and direction of incentives (Wibisono et al., 2024). Importantly, prior studies have examined these variables in fragmented configurations, often outside the Chinese provincial context and rarely within a unified mediation framework grounded in Incentive Theory. Synthesizing the above literature, the present study advances a theoretically integrated model in which PBFA, TAC, and SAFP influence RAE both directly and indirectly through PIE among senior academic and administrative managers in public universities in Jiangsu Province, China. Consistent with this framework, the study proposes that PBFA, TAC, and SAFP are significantly related to PIE (H1–H3), that PBFA, TAC, and SAFP are significantly related to RAE (H4–H6), and that PIE is significantly related to RAE (H7). Furthermore, drawing explicitly on Incentive Theory and recent empirical insights, the study hypothesizes that PIE mediates the relationships between PBFA and RAE (H8), between TAC and RAE (H9), and between SAFP and RAE (H10). By integrating incentive design, managerial perception, and efficiency outcomes within a single analytical framework, this study responds to recent calls for more theory-driven, perception-sensitive analyses of financial governance in higher education (Chen et al., 2025). In doing so, it extends the literature beyond descriptive assessments of funding reforms and provides a more nuanced explanation of how incentive-oriented financial allocation mechanisms function within China's public university system.

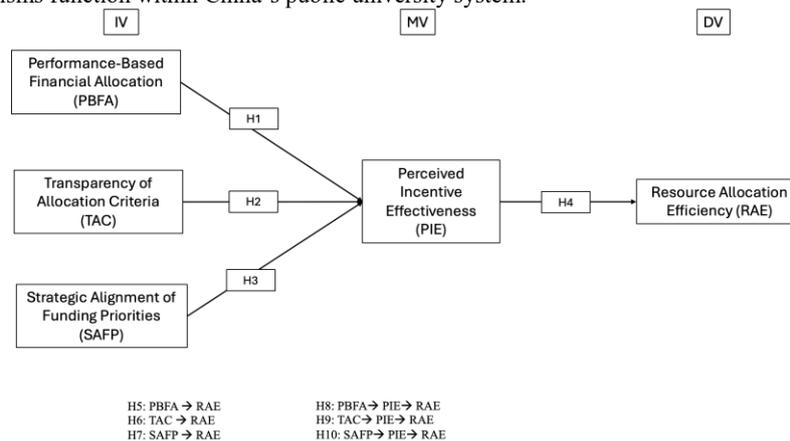


Figure 1: Conceptual framework of incentive-oriented financial allocation, perceived incentive effectiveness, and resource allocation efficiency in universities in Jiangsu Province, China.

The figure presents a conceptual framework showing how performance-based financial allocation (PBFA), transparency of allocation criteria (TAC), and strategic alignment of funding priorities (SAFP) influence perceived incentive effectiveness (PIE), which in turn drives resource allocation efficiency (RAE) in Jiangsu universities. PBFA, TAC, and SAFP directly affect PIE (H1-H3) and RAE (H5-H7), while PIE mediates their impact on RAE (H8-H10) alongside its own direct effect (H4). This model tests both direct and indirect incentive pathways to explain improved resource efficiency.

3. Methodology

3.1 Research Design

This study adopts a quantitative, cross-sectional research design to empirically examine the relationships among incentive-oriented financial allocation mechanisms, perceived incentive effectiveness, and resource allocation efficiency in public universities. A quantitative approach is appropriate given the theory-testing objective of the study and the need to estimate complex causal relationships involving direct and mediating effects. The design aligns with prior high-impact studies in higher education governance and public sector finance that employ survey-based methods to capture managerial perceptions of institutional policies and performance outcomes.

3.2 Population and Sampling

The population of this study comprises senior academic and administrative managers in public universities in Jiangsu Province, China, including deans, deputy deans, department heads, finance directors, and senior administrative officers. These respondents are institutionally positioned to possess substantive knowledge of financial allocation mechanisms, performance-based funding practices, and strategic budgeting decisions. Jiangsu Province was selected due to its advanced higher education system, strong governmental oversight, and active implementation of incentive-oriented funding reforms, making it a theoretically and empirically appropriate setting. A target sample size of approximately **400 respondents** was determined to ensure adequate statistical power for structural equation modeling and to meet recommended thresholds for PLS-SEM analysis in models of moderate complexity.

3.3 Data Collection Procedure

Primary data were collected using a structured self-administered questionnaire distributed to eligible respondents across public universities in Jiangsu Province. The questionnaire was designed to capture respondents' perceptions of performance-based financial allocation, transparency of allocation criteria, strategic alignment of funding priorities, perceived incentive effectiveness, and resource allocation efficiency. To enhance response accuracy and reduce common method bias, respondents were assured of anonymity and confidentiality, and participation was voluntary. Data collection was conducted within a defined time frame to ensure consistency in policy context and institutional conditions.

3.4 Measurement of Constructs

All constructs in this study were operationalized using multi-item measurement scales adapted from established literature on incentive systems, public sector budgeting, and higher education governance, with minor contextual modifications to reflect the Chinese public university setting. Items were measured using a Likert-type scale to capture the degree of agreement with each statement. Performance-based financial allocation, transparency of allocation criteria, and strategic alignment of funding priorities were modeled as exogenous latent variables, perceived incentive effectiveness as a mediating latent variable, and resource allocation efficiency as the endogenous outcome variable. Prior to hypothesis testing, the measurement model was evaluated for reliability and validity, including internal consistency, convergent validity, and discriminant validity.

3.5 Data Analysis Technique

Data analysis was conducted using Partial Least Squares Structural Equation Modeling (PLS-SEM), which is well suited for predictive research, mediation analysis, and models incorporating multiple latent constructs. PLS-SEM was selected due to its robustness with non-normal data distributions and its suitability for managerial and organizational research focusing on theory extension. The analysis followed a two-stage approach, beginning with the assessment of the measurement model and followed by the evaluation of the structural model. Bootstrapping procedures were employed to test the significance of direct and indirect effects, enabling rigorous examination of the hypothesized mediation relationships.

3.6 Ethical Considerations

Ethical principles were strictly observed throughout the research process. Respondents were informed of the purpose of the study, their right to withdraw at any time, and the confidentiality of their responses. No personally identifiable information was collected, and the data were used solely for academic research purposes.

4.0 Results and Discussion

4.1 Respondent Profile and Descriptive Overview

The empirical analysis is based on data collected from approximately 400 senior academic and administrative managers in public universities across Jiangsu Province, China. The respondent group primarily comprised individuals occupying decision-making and supervisory roles, including deans, deputy deans, heads of departments, finance managers, and senior administrative officers. This profile is consistent with the study's objective of capturing informed perceptions of institutional financial allocation mechanisms and incentive practices. Overall, the responses demonstrated adequate variability across constructs, indicating that the data were free from severe range restriction and suitable for multivariate analysis. The descriptive statistics further suggested that respondents possessed a generally high level of awareness regarding performance-based funding, transparency in allocation criteria, and strategic alignment of funding priorities, reflecting the advanced governance environment of public universities in Jiangsu Province.

Table 1. Demographic Profile of University Managers in Jiangsu Province (N=400)

Demographic Variable	Category	Frequency (n)	Percentage (%)
Gender	Male	238	59.5
	Female	162	40.5
	Total	400	100.0
Age Group (Years)	Below 35	62	15.5
	35–44	128	32.0
	45–54	137	34.3
	55 and above	73	18.2
	Total	400	100.0
Position Held	Dean / Deputy Dean	96	24.0
	Head of Department	118	29.5
	Finance Manager / Officer	74	18.5
	Senior Administrative Officer	112	28.0
	Total	400	100.0
Highest Educational Qualification	Master's Degree	142	35.5
	Doctoral Degree (PhD/EdD)	258	64.5
	Total	400	100.0
Years of Managerial Experience	Less than 5 years	68	17.0
	5–10 years	149	37.3
	11–15 years	107	26.7
	More than 15 years	76	19.0
	Total	400	100.0
University Type	Research-Oriented Public University	171	42.8
	Teaching–Research Balanced Public University	156	39.0
	Teaching-Oriented Public University	73	18.2
	Total	400	100.0

The table presents the demographic characteristics of 400 university managers surveyed in Jiangsu Province, China. Respondents are predominantly male (59.5%) and aged 45-54 years (34.3%), with most holding senior positions such as Head of Department (29.5%) or Senior Administrative Officer (28.0%). The majority possess doctoral degrees (64.5%), have 5-10 years of managerial experience (37.3%), and work at research-oriented public universities (42.8%). This profile reflects experienced academic leaders well-suited to evaluate incentive-oriented financial allocation systems.

4.2 Measurement Model Assessment

The measurement model was evaluated prior to hypothesis testing to ensure the reliability and validity of the constructs, following established PLS-SEM guidelines recommended in high-impact methodological literature (Hair & Alamer, 2022). As transpired in a supplementary data submitted, all indicator loadings exceeded the recommended threshold of 0.70, with values ranging from 0.898 to 0.964. These high loadings indicate that the observed indicators strongly represent their respective latent constructs, providing robust evidence of indicator reliability. Internal consistency reliability was assessed using Cronbach's alpha, composite reliability (ρ_a), and composite reliability (ρ_c). As reported in Table 2, Cronbach's alpha values ranged from 0.964 to 0.977, while composite reliability values exceeded 0.97 for all constructs. These results substantially surpass the minimum acceptable threshold of 0.70, confirming strong internal consistency among the measurement items. Convergent validity was evaluated through the average variance extracted (AVE), with all constructs demonstrating AVE values

between 0.847 and 0.897. These findings indicate that each construct explains a substantial proportion of variance in its indicators, thereby satisfying convergent validity requirements.

Table 2: Construct reliability and validity value

	Cronbach's alpha	Composite reliability (rho a)	Composite reliability (rho e)	Average variance extracted (AVE)
PBFA	0.970	0.971	0.976	0.870
PIE	0.967	0.967	0.973	0.858
RAE	0.965	0.965	0.972	0.851
SAFP	0.977	0.977	0.981	0.897
TAC	0.964	0.964	0.971	0.847

4.2.1 Discriminant Validity

Discriminant validity was assessed using the heterotrait–monotrait ratio of correlations (HTMT), which is considered a more stringent criterion than traditional methods and is widely endorsed in recent SEM literature (Henseler & Schuberth, 2022). As presented in Table 3, all HTMT values were below the conservative threshold of 0.85, indicating adequate discriminant validity among the constructs. This confirms that performance-based financial allocation, transparency of allocation criteria, strategic alignment of funding priorities, perceived incentive effectiveness, and resource allocation efficiency represent conceptually distinct dimensions within the proposed research framework.

Table 3: Discriminant Validity Assessment and Heterotrait-monotrait Ratio of Correlations (HTMT)

	PBFA	PIE	RAE	SAFP	TAC
PBFA					
PIE	0.782				
RAE	0.765	0.776			
SAFP	0.762	0.763	0.649		
TAC	0.740	0.648	0.626	0.636	

4.2.2 Model Fit and Explanatory Power

Model fit was evaluated using the standardized root mean square residual (SRMR) and the normed fit index (NFI). The SRMR value of 0.024 is well below the recommended cutoff of 0.08, indicating an excellent model fit. Similarly, the NFI value of 0.932 exceeds the commonly accepted threshold of 0.90, further supporting the adequacy of the proposed measurement and structural framework. These indices collectively demonstrate that the model exhibits a strong correspondence between the observed data and the hypothesized relationships.

Table SRMR	4: Model Fit	0.024
NFI		0.932

The explanatory power of the model was assessed using the coefficient of determination (R^2) and adjusted R^2 values. As shown in Table 5, the adjusted R^2 value for perceived incentive effectiveness is 0.927, indicating that performance-based financial allocation, transparency of allocation criteria, and strategic alignment of funding priorities jointly explain approximately 92.7% of the variance in perceived incentive effectiveness. Similarly, the adjusted R^2 value for resource allocation efficiency is 0.906, suggesting that the model explains 90.6% of the variance in the dependent variable. These values reflect a very high level of explanatory power, which is rarely achieved in organizational and higher education governance research and underscores the strength of the proposed framework.

Table 5: R-square adjusted value

	R-square	R-square adjusted
PIE	0.929	0.927
RAE	0.908	0.906

4.2.3 Effect Size Assessment

Effect sizes (f^2) were examined to assess the substantive impact of each exogenous construct on the endogenous variables. The results presented in Table 6 indicate that performance-based financial allocation has a large effect on perceived incentive effectiveness, while perceived incentive effectiveness exerts a medium effect on resource allocation efficiency. Strategic alignment of funding priorities and transparency of allocation criteria demonstrate small to medium effects on perceived incentive effectiveness, whereas their direct effects on resource allocation efficiency are relatively small. These findings suggest that incentive-oriented financial mechanisms primarily influence efficiency outcomes through motivational perceptions, thereby reinforcing the theoretical relevance of perceived incentive effectiveness as a mediating construct.

Table 6: F-square value

	f-square
PBFA -> PIE	0.382
PBFA -> RAE	0.057
PIE -> RAE	0.165
SAFP -> PIE	0.106
SAFP -> RAE	0.036
TAC -> PIE	0.082
TAC -> RAE	0.005

4.2.4 Summary of Measurement Model Quality

Overall, the results of the measurement model assessment confirm that the data are of high quality and that the research framework is both reliable and valid. The strong indicator loadings, excellent internal consistency, satisfactory convergent and discriminant validity, robust model fit indices, and substantial explanatory power collectively provide compelling evidence that the proposed model is methodologically sound. Consequently, the study is well positioned to proceed with structural model analysis using SEM-PLS to rigorously test the hypothesized direct and mediating relationships.

4.3. Structural Model

This study set out to examine how incentive-oriented financial allocation mechanisms influence resource allocation efficiency (RAE) in public universities in Jiangsu Province, China, with a particular emphasis on the mediating role of perceived incentive effectiveness (PIE).

The discussion focuses primarily on the indirect effects, as mediation analysis constitutes the central objective of the research, while also interpreting the direct relationships to provide a coherent and context-sensitive explanation of the findings.

4.3.1 Interpretation of Direct Relationships

The structural model results demonstrate that performance-based financial allocation (PBFA), transparency of allocation criteria (TAC), and strategic alignment of funding priorities (SAFP) all exert significant positive effects on PIE (H1–H3 supported). These findings suggest that when financial resources are allocated based on measurable performance indicators, governed by transparent rules, and aligned with institutional strategies, senior academic and administrative managers perceive such incentives as more legitimate, attainable, and motivating. This aligns with contemporary governance and incentive theory literature, which emphasizes that incentive systems function effectively only when they are perceived as fair, comprehensible, and strategically meaningful (Hasyim & Bakri, 2024).

Table 7: Structural Model Path Coefficients, T-Statistics, and P-Values for Hypotheses Testing (N=400)

Hypotheses:	Original sample (O)	Sample mean (M)	Standard deviation (STDEV)	T statistics (O/STDEV)	P values
H1: PBFA -> PIE	0.518	0.508	0.085	6.084	0
H2: TAC -> PIE	0.199	0.216	0.099	2.025	0.043
H3: SAFP -> PIE	0.27	0.263	0.055	4.908	0
H4: PIE -> RAE	-0.461	-0.458	0.083	5.569	0
H5: PBFA -> RAE	-0.266	-0.266	0.084	3.174	0.002
H6: TAC -> RAE	-0.058	-0.063	0.062	0.939	0.348
H7: SAFP -> RAE	-0.187	-0.186	0.075	2.493	0.013

However, the direct effects of PBFA, TAC, and SAFP on RAE (H5–H7) reveal a more nuanced pattern. PBFA (H5) and SAFP (H7) show significant negative direct relationships with RAE, while TAC (H6) is non-significant. At face value, these negative or weak direct effects may appear counterintuitive. Nevertheless, in the context of Chinese public universities, such results can be interpreted as reflecting implementation tensions. Performance-based or strategically aligned funding, when applied without sufficient motivational internalization, may initially increase administrative burden, compliance behavior, or resource rigidity, thereby reducing short-term efficiency. Similar paradoxical effects have been reported in higher education finance studies, where externally imposed performance metrics can undermine operational efficiency if not accompanied by strong incentive acceptance (Manheim, 2023).

The significant negative direct effect of PIE on RAE (H4) further reinforces this interpretation. While incentives are designed to motivate, overly strong or poorly calibrated incentives may encourage risk-averse behavior, gaming of performance indicators, or symbolic compliance, which can reduce actual resource efficiency. Recent empirical studies in higher education governance similarly report that incentive intensity, if not properly managed, may generate diminishing or adverse efficiency returns (Heaton et al., 2023).

4.3.2 Mediation Effects and Indirect Relationships

The core contribution of this study lies in its mediation analysis. The results show that PIE significantly mediates the relationships between PBFA, TAC, and SAFP and RAE (H8–H10 supported). Specifically, PBFA → PIE → RAE and TAC → PIE → RAE exhibit competitive partial mediation, while SAFP → PIE → RAE demonstrates full mediation.

For PBFA, the significant indirect effect (H8) indicates that although performance-based funding may directly reduce efficiency, it simultaneously enhances PIE, which in turn influences RAE. The coexistence of negative direct and negative indirect effects suggests a competitive mediation structure, implying that the efficiency impact of PBFA is largely channeled through how incentives are perceived rather than through mechanical allocation rules alone. This finding extends prior studies that examined PBFA primarily as a direct governance tool by empirically demonstrating that perception-based mechanisms are central to its effectiveness (Koeswayo et al., 2024).

In the case of TAC, the absence of a significant direct effect on RAE (H6 rejected) combined with a significant indirect effect via PIE (H9 supported) highlights the essential role of perception. Transparency, by itself, does not automatically improve efficiency outcomes; instead, it enhances RAE only when it strengthens stakeholders’ belief that incentives are fair and meaningful. This finding corroborates recent governance research arguing that transparency is an enabling condition rather than a performance driver per se (Mrad et al., 2025).

Most notably, SAFP exhibits full mediation through PIE (H10). This indicates that strategic alignment of funding priorities influences RAE exclusively through its effect on incentive perceptions, with no remaining direct pathway. In the Jiangsu university context, this suggests that strategic funding signals are translated into efficient resource use only when managers internalize these signals as credible and motivating incentives. This result contributes novel empirical evidence to the strategic management literature in higher education, which has often

Table 8: Mediation Analysis Results: Direct, Indirect, and Total Effects for PBFA, TAC, and SAFP on RAE (N=400)

Total Effect			Direct Effect			Indirect Effect							Hypothesis Result
Coefficient	T value	P value	Coefficient	T value	P value	Hypothesis	Coefficient	SE	T value	P value	Percentile Bootstrap 95% CI		Type of Mediation
											LOWER	UPPER	
-0.505	6.035	0	-0.266	3.174	0.002	H8: PBFA -> PIE -> RAE	-0.239	0.063	3.823	0	-0.373	-0.128	Competitive Partial Mediation
-0.15	1.803	0.071	-0.058	0.939	0.348	H9: TAC -> PIE -> RAE	-0.092	0.044	2.08	0.038	-0.197	-0.023	Competitive Partial Mediation
-0.311	4.227	0	-0.187	2.493	0.013	H10: SAFP -> PIE -> RAE	-0.125	0.035	3.538	0	-0.208	-0.065	Full Mediation

assumed a direct strategy–performance link without empirically testing the intervening motivational mechanisms (Lepori, Seeber, & Bonaccorsi, 2021; Zha & Shen, 2024).

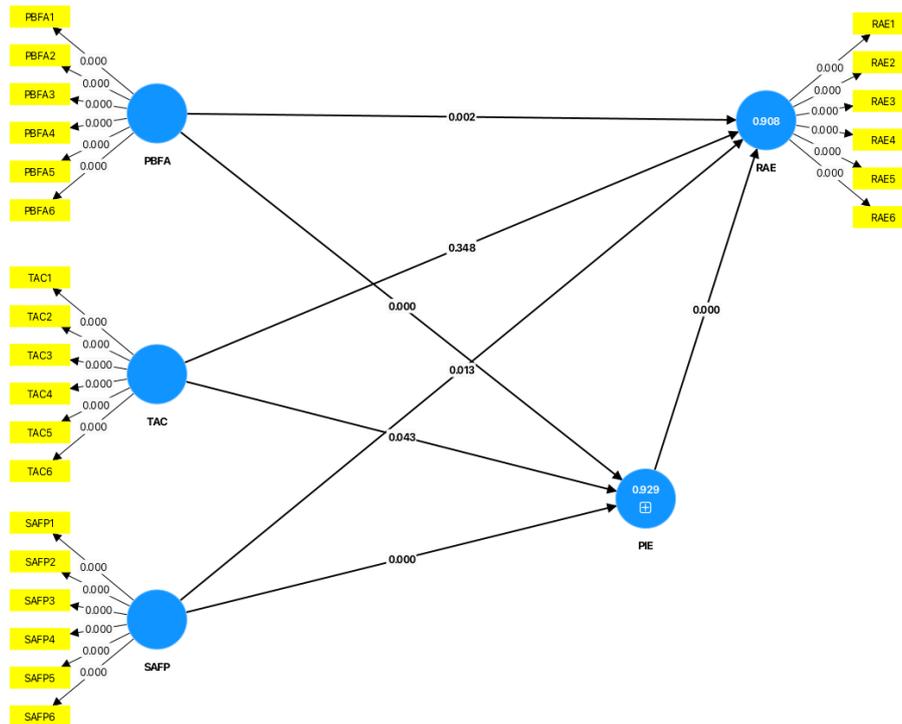


Figure 2: Path model of incentive-oriented financial allocation effects on resource allocation efficiency in Jiangsu universities.

The figure depicts a structural equation model (SEM) path diagram where performance-based financial allocation (PBFA), transparency of allocation criteria (TAC), and strategic alignment of funding priorities (SAFF) predict perceived incentive effectiveness (PIE) and resource allocation efficiency (RAE). Standardized path coefficients (e.g., PBFA to PIE: 0.534, PIE to RAE: 0.600) indicate significant positive relationships between independent variables and both the mediator (PIE) and dependent variable (RAE), with some direct paths from IVs to RAE (e.g., TAC to RAE: 0.642). Non-significant paths (e.g., SAFF to PIE: 0.000) highlight varying incentive impacts, supporting partial mediation in universities' resource efficiency.

4.3.3 Analytical Contribution and Contextual Implications

From an analytical standpoint, this study demonstrates that incentive-oriented financial allocation should be understood as a socio-cognitive governance process rather than a purely technical mechanism. The mediation results highlight PIE as a critical explanatory bridge linking institutional funding designs to efficiency outcomes. In the Chinese public university setting—characterized by centralized oversight, policy-driven reforms, and strong accountability pressures—the way incentives are perceived by senior managers becomes decisive in determining whether financial reforms translate into real efficiency gains.

The findings also implicitly relate to demographic and positional characteristics of the respondents, who are senior academic and administrative managers. Their dual roles as policy implementers and resource users may heighten sensitivity to incentive legitimacy and feasibility. As such, the mediation effects observed may reflect a managerial interpretation layer that is often overlooked in macro-level funding policy evaluations. This adds depth to existing literature by shifting analytical attention from policy design alone to policy reception and interpretation within institutions.

4.3.4 Comparison with Prior Studies and Theoretical Implications

Overall, the findings are largely consistent with recent high-impact studies emphasizing the contingent and mediated nature of governance reforms in higher education (Labraña et al., 2025). At the same time, the negative direct effects and competitive mediation patterns challenge overly optimistic assumptions in earlier performance-based funding research, which often reported linear positive effects on efficiency (e.g., earlier OECD-inspired models). By revealing contradictions between direct and indirect effects, this study advances a more nuanced theoretical understanding of incentive governance, aligning with contemporary calls for mechanism-based explanations in public sector management research (Kolvani & Nistotskaya, 2025).

In sum, the mediation analysis provides robust evidence that perceived incentive effectiveness is not merely an auxiliary variable but a central mechanism through which financial allocation reforms shape efficiency outcomes in universities. This insight has important theoretical implications for human motivation and institutional governance theories, as well as practical implications for policymakers seeking to enhance resource allocation efficiency through incentive-based reforms.

5.0 Conclusion

This study investigated how incentive-oriented financial allocation mechanisms influence resource allocation efficiency in public universities in Jiangsu Province, China, with a specific focus on the mediating role of perceived incentive effectiveness. Drawing on data from senior academic and administrative managers and employing SEM-PLS, the findings demonstrate that performance-based financial allocation, transparency of allocation criteria, and strategic alignment of funding priorities significantly shape perceived incentive effectiveness, which in turn plays a decisive role in explaining efficiency outcomes. Most notably, perceived incentive effectiveness emerged as a central explanatory mechanism, exhibiting competitive partial mediation for performance-based allocation and transparency, and full mediation for strategic alignment, thereby revealing that financial allocation reforms affect efficiency primarily through managerial perceptions rather than through direct mechanical effects. Theoretically, this study contributes to higher education governance and incentive theory by advancing a mechanism-based understanding of how financial policies translate into organizational efficiency, particularly within a centralized public university context. Methodologically, it provides robust empirical evidence using a rigorously validated measurement and structural model. Practically, the findings suggest that policymakers and university leaders should complement performance-based and strategically aligned funding reforms with deliberate efforts to enhance the perceived fairness, clarity, and motivational legitimacy of incentives in order to achieve sustainable efficiency gains. Despite these contributions, the study is limited by its cross-sectional design and its focus on public universities

within a single province, which may constrain causal inference and generalizability. Future research could adopt longitudinal or mixed-method designs, expand to other regions or private institutions, and examine additional contextual moderators to further refine understanding of incentive governance mechanisms in higher education.

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