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Examining the Relationship Between Budget Allocation, Procurement Systems, and Financial Efficiency at the Royal University of Bhutan

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Abstract

This study investigates the effect of budget allocation and procurement processes on the effective utilization of funds within the Royal University of Bhutan (RUB)'s constituent colleges—institutions central to Bhutan's intellectual and developmental aspirations. Although financial management is widely acknowledged as a strategic priority for advancing academic infrastructure, reports by the Royal Audit Authority (2022–2024) highlight persistent discrepancies and irregularities in fund utilization and procurement practices across several colleges. The study aims to: (1) examine how budgets are utilized, (2) analyze how procurement processes are implemented, and (3) assess their combined impact on the overall performance of the colleges. A mixed-methods approach was adopted, collecting qualitative data from 11 participants and quantitative data from 73 respondents, including Presidents, Deans, Heads of Departments, and other relevant officials. Data were collected through structured surveys and interviews. Quantitative data were analyzed using R Studio and Microsoft Excel for descriptive and inferential statistics, while qualitative data were analyzed using thematic analysis. Visualizations, including charts, tables, and graphs, were used to enhance data interpretation.The findings reveal that 61% of respondents were moderately familiar with budget processes and perceived budget allocation guidelines as unclear, citing limited direction and insufficient funding. Furthermore, 65% reported procurement delays that adversely affected financial efficiency. The Chi-square test ($\chi^2 = 10.01$, $df = 20$, $p < 0.05$) confirmed a statistically significant association between effective fund utilization and the alignment of budget allocation with strategic goals. Spearman's rank correlation ($\rho = 0.83$, $p < 0.01$) further demonstrated a strong positive relationship between effective procurement practices and improved fund utilization. Thematic analysis also revealed that limited institutional capacity and compliance issues constrained procurement processes, resulting in delays in service delivery and inefficient use of financial resources. The study concludes that

enhancing budget clarity, aligning financial management practices with institutional objectives, and strengthening procurement capacity are essential for improving financial governance across RUB's constituent colleges. The findings provide evidence-based policy recommendations to support the alignment of financial management practices with the university's strategic goals and promote sustainable institutional development.

Keywords— Procurement process, budget allocation, strategic planning, capacity building, financial efficiency, and fund utilisation

1 Introduction

The Royal University of Bhutan (RUB), as a key institution of higher learning, plays a pivotal role in shaping the nation's social, intellectual, and developmental progress. To achieve its strategic objectives, RUB constituent colleges must ensure the efficient allocation and effective utilization of financial resources. However, the complexity of budgeting and procurement procedures often creates challenges that hinder the optimal utilization of allocated funds.

Although existing literature has extensively examined public financial management practices in higher education [2, 11, 17], a significant research gap remains regarding the integrated relationship between budget allocation clarity, procurement delays, and fund utilization effectiveness within Bhutan's distinctive higher education governance structure. In particular, limited empirical evidence exists on how these factors interact and influence institutional performance across RUB's geographically dispersed constituent colleges. Furthermore, recurring observations of budget irregularities reported by the Royal Audit Authority (RAA) [23, 22] indicate persistent systemic challenges in financial management that require further investigation.

This study addresses these gaps by providing empirical evidence through a mixed-methods approach involving RUB constituent colleges. It examines the relationships between budget allocation practices, procurement delays, and fund utilization effectiveness, while identifying statistically significant associations among these constructs. Additionally, the study proposes context-specific policy recommendations to strengthen financial governance within a small developing university operating under a centralized public financial management system.

1.1 Research Objectives

- To examine fund allocation and determine how the university uses its budget while ensuring key needs are met.
- To analyse procurement processes to check if the way items and services are bought is efficient and cost-effective.
- To assess overall impact by exploring how budget decisions and procurement affect university performance, academic quality, and student support.

1.2 Problem Statement

Effective budget allocation is essential for higher education institutions to achieve their strategic objectives. However, several constituent colleges under the Royal University of Bhutan (RUB) have experienced cases of non-compliance with financial rules and regulations, resulting in inefficient resource allocation and suboptimal utilization of funds. According to Obura [17], inadequate compliance mechanisms require timely intervention and effective monitoring, as weaknesses in financial controls can negatively affect procurement processes and overall fund utilization.

The Royal Audit Authority (RAA) reported several budget irregularities across RUB constituent colleges in its 2022 Annual Audit Report [23]. The reported budget abnormalities included Nu. 50.784 million at the College of Information and Technology, Gyelposhing; Nu. 6.917 million at the College of Language and Cultural Studies, Taktse; Nu. 5.088 million at Gedu College of Business Studies, Chukha; Nu. 1.743 million at the College of Science and Technology, Rinchending; Nu. 1.730 million at the College of Natural Resources, Lobesa; Nu. 1.156 million at Samtse College of Education; Nu. 0.191 million at Jigme Namgyel Engineering College, Dewathang; Nu. 0.150 million at Sherubtse College, Kanglung; and Nu. 0.036 million at Paro College of Education.

Furthermore, the RAA 2024 report revealed that funds amounting to Nu. 9.935 million, released to five RUB constituent colleges by the Department of Employment and Entrepreneurship under the Ministry of Industry, Commerce and Employment (MoICE) for establishing incubation centres, remained unspent [22]. The audit findings indicated incomplete implementation of planned activities and inaccurate reporting of expenditures. These financial deviations demonstrate significant inconsistencies in budget execution and fund utilization across RUB colleges, highlighting the need for enhanced monitoring, accountability, and transparency. Addressing these challenges is critical for strengthening financial governance and improving the effectiveness of budget allocation and procurement processes within RUB.

1.3 Research Questions and Hypotheses

This study is guided by the following research questions (RQs) and corresponding hypotheses (Hs):

RQ1: How does the budget allocation process at the Royal University of Bhutan (RUB) influence the distribution of funds across its constituent colleges?

H1a: The budget allocation process has a significant influence on the distribution of funds among RUB constituent colleges.

RQ2: How do procurement challenges affect the timely and efficient acquisition of goods and services, and consequently the utilization of allocated funds?

H1b: Procurement challenges, including procedural delays and ineffective communication, have a significant negative effect on the timely acquisition of goods and services and the effective utilization of allocated funds.

RQ3: What strategies can enhance the effective utilization of funds at RUB by improving budget allocation and procurement processes while aligning them with the university's strategic goals?

H1c: There is a significant positive association between the alignment of budget allocation and procurement practices with institutional strategic goals and the effectiveness of fund utilization.

2 Literature Review

Effective financial accountability and resource management in higher education institutions depend on transparent budgeting, efficient procurement systems, and strong governance mechanisms. Existing studies indicate that financial allocation policies and procurement practices significantly influence operational performance, financial sustainability, and institutional effectiveness. This review examines the existing literature on strategic budgeting, procurement processes, budgetary control, governance frameworks, and financial implementation practices in higher education institutions.

A budget represents an annual financial plan that quantifies the resources required to support institutional programmes, research activities, and operational functions. The budget allocation process involves financial requests, evaluation, and distribution of resources among institutional units. Several researchers have emphasized the importance of strategic budgeting in achieving organizational objectives and improving resource efficiency. Al-Khadash and Feridun [2] argued that strategic budgeting enhances the alignment of financial resources with institutional priorities, thereby improving organizational performance. Similarly, Iriowen *et al.* [11] highlighted that strategic budgeting

and procurement practices are essential components of effective institutional management. Participatory budgeting has also been recognized as an important mechanism for promoting equitable resource distribution and accountability, with stakeholder involvement contributing to improved decision-making processes [8, 12]. Furthermore, financial reforms such as medium-term expenditure frameworks and performance-based budgeting have been shown to improve expenditure predictability, spending efficiency, and institutional autonomy [5, 14].

Procurement processes within academic institutions play a critical role in achieving value for money, minimizing financial risks, and improving cost efficiency. Rejeb *et al.* [21] and Obura [17] emphasized that effective procurement planning and management contribute significantly to efficient resource utilization. Thai [24] noted that robust procurement systems enhance accountability, competitiveness, transparency, and fairness while reducing financial leakages and mismanagement. Furthermore, compliance with procurement policies has been positively associated with institutional financial performance [6, 13]. Studies by Ameyaw *et al.* [3] and Podger *et al.* [20] further demonstrated that procurement regulations strengthen the relationship between procurement processes and institutional performance outcomes. Similarly, Basheka and Bisangabasaija [7] reported that procurement planning, supplier selection, and contract management significantly influence service delivery and fund utilization in Ugandan universities.

Budgetary control mechanisms are also essential for maintaining financial discipline and ensuring accountability in higher education institutions. Rajan *et al.* [9] and Obura [17] identified budgetary control as an important tool for monitoring expenditures, evaluating financial performance, and promoting fiscal responsibility. Abogun and Fagbemi [1] further concluded that effective internal controls and periodic budget reviews help reduce resource wastage and improve financial efficiency in Nigerian universities.

Institutional capacity and technological advancement are additional factors influencing procurement effectiveness. Obanda [16] and Iriowen *et al.* [11] highlighted that procurement personnel competencies and supporting technological infrastructure are critical for efficient procurement implementation. The adoption of electronic procurement systems has been shown to reduce procurement cycle time, lower transaction costs, and improve transparency [4]. Moreover, continuous capacity development and stakeholder engagement contribute to achieving procurement objectives and strengthening financial management practices [18].

Effective budget allocation and procurement efficiency are also shaped by governance structures and regulatory frameworks. Pillay [19] and Transparency International [25] emphasized that institutional checks and balances, regulatory oversight, and governance mechanisms reduce procurement-related challenges and minimize opportunities for financial misappropriation. Strong governance frameworks therefore provide the foundation for transparent and accountable financial management.

Despite the extensive literature on budgeting and procurement in higher education, several research gaps remain. Most existing studies examine budgeting and procurement independently or focus on specific national contexts. Limited research has investigated the integrated relationship between budget clarity, procurement delays, and fund utilization effectiveness within small, centrally governed higher education systems such as Bhutan. Furthermore, few studies have employed a mixed-methods approach combining survey evidence with audit findings to examine these relationships. This study addresses this gap by providing empirical evidence from the Royal University of Bhutan (RUB) through the analysis of survey and audit data and by testing hypotheses related to budget allocation, procurement efficiency, and fund utilization effectiveness.

3 Methodology

3.1 Research Design

This study adopted a mixed-methods design (qualitative + quantitative) to ensure a comprehensive understanding of the research hypothesis and to capture both numerical trends and in-depth perspectives. This mixed-methods approach enhanced validity, reliability and triangulation by cross-verifying data from multiple sources.

3.2 Sampling Strategy and Justification

Target population included all officials who were involved in budget planning, procurement, and fund utilization across nine constituent colleges of RUB and the Office of the Vice-Chancellor. Sampling techniques adopted were combination of purposive sampling for qualitative interviews and stratified random sampling for the survey. For qualitative purposes, 11 participants were purposively selected based on their direct involvement in budget and procurement decisions, ensuring representation from different colleges and hierarchical levels (Presidents, Deans, Finance Officers). In addition, a total of 73 survey respondents were drawn from all colleges using stratified random sampling proportional to college size. The sample size was determined based on Yamane's formula (1967) at 95% confidence level and 10% margin of error, given an estimated population of 275 eligible officials.

The main reason for choosing this approach is to ensure that the sample is representative of different roles (academic, administrative, finance) and colleges, while the purposive element captures rich experiential data.

3.3 Data Collection Instruments

3.3.1 Focus Group Interview (Qualitative)

A semi-structure interview guide was used with 11 key officials from Office of the Vice-Chancellor, Science and Technology, Gedu College of Business Studies, College of Natural Resources, Paro College of Education and Jigme Namgyel Engineering College. These participants were selected based on their expertise, professional experience, and direct involvement in the budget utilisation and procurement practices. For allowing room for participants and capturing key themes and deep insights, a semi-structured interview format was adopted, where the discussion was guided through a predetermined open-ended question. Such selection criteria and question format were ensured to ensure both consistency across interviews and flexibility for deeper exploration of emerging themes. Moreover, the discussion was noted down with participants' consent and later segregated to facilitate thematic analysis. The participants' insights were categorized into themes and identified patterns to furnish interpretation according to research objectives.

3.3.2 Online Survey (Quantitative)

A structured questionnaire was designed and distributed via Google Forms, targeting only the relevant audience across all RUB colleges. It contained Likert-scale items, rankings, and two open-ended questions. The survey was open for two months, with reminders sent weekly. A total of 73 complete responses were received (response rate:73%).

3.4 Data Analysis

3.4.1 Quantitative Analysis (R Studio and Excel)

3.5 Data Analysis

Data cleaning was conducted through a series of sequential procedures to ensure data quality and consistency. Missing values accounting for less than 5% of the total observations were handled using listwise deletion. The reliability of the research instrument was assessed using Cronbach's alpha, which yielded a value of $\alpha = 0.79$, indicating acceptable internal consistency.

Descriptive statistics, including frequencies, percentages, and mean values, were computed to summarize the characteristics and distribution of the collected data. Inferential statistical analyses were performed to address the three research questions. A Chi-square test of independence was applied to examine the association between budget allocation methods and fund distribution among colleges (RQ1). An ordinal logistic regression model was employed to evaluate the effect of procurement delays on the effective utilization of allocated funds (RQ2). Spearman's rank-order correlation analysis was conducted to assess the relationship between the alignment of budget allocation and procurement practices with institutional strategic goals and the effectiveness of fund utilization (RQ3).

For data visualization and presentation, the *ggplot2* and *dplyr* packages in R were utilized for generating graphical representations and data manipulation. Additional visualizations were developed using Microsoft Excel to enhance interpretation and communication of the findings.

3.5.1 Qualitative Analysis (Thematic Analysis)

Interview transcripts and open-ended survey responses were analyzed using thematic analysis following the approach proposed by Braun and Clarke [**?**]. The analysis involved systematic coding of qualitative data, followed by categorization of related codes into broader themes. The identified themes were subsequently reviewed, refined, and defined to ensure accurate interpretation of participants' perspectives and to support the integration of qualitative findings with quantitative results.

3.6 Ethical Considerations

Informed consent was obtained from all participants, ensuring voluntary participation and transparency in objectives before the data collection process (online survey and structured interview). Participants were informed about the confidentiality and anonymity of the data collection process. Through the coding process, all participants' identifiers were removed from the datasets to protect their privacy and security. Moreover, the researchers strictly comply with ethical guidelines and regulations set forth by the Royal University of Bhutan's Research Policy 2014 concerning human participants and their confidentiality.

4 Results (Quantitative Findings)

This section of the study captures analysis and discussion of research findings and highlights how financial practices impact fund utilisation and overall institutional performance in general. This study incorporates four key areas to provide a structured examination and discussion. The first section provides demographic information for respondents and budget allocation strategies that influence budget decisions. The second section presents the analysis of budget allocation strategies with identifying patterns and distribution trends in financial resources. The third section focuses on procurement processes with emphasis on assessment of efficiency, transparency, and the role in

fund expenditure. Finally, the fourth section analyses fund utilisation and establishes a correlation between financial decision-making and institutional outcomes.

To provide valuable insights into financial governance at RUB, a detailed exploration of how variables were correlated to each other was made with underscoring key findings, shortcomings, and potential improvements in resource optimisation, which ultimately contributed to the improvement of financial management practices across the colleges.

4.1 Demographic Profile of Respondents

Figure 1 shows the respondents' position for 73 survey respondents across various colleges and the office of the vice-chancellor. The CST responded the highest with 17 responses, while OVC and GCBS with the lowest responses (4 each). The distribution patterns in the figure indicate diverse participants with different roles, which captured the diverse perspectives, insights, and comprehensively assessed the budget distribution and procurement practices across the colleges, which impacted the effectiveness and efficiency of fund utilisation. Academics and HoDs recorded the highest response rate with 18, followed by 13 from HR and procurement personnel. However, the President/Directors and Deans/Chiefs had a smaller response rate. The above distribution shows that both academics and supporting staff participated in the survey, which indicates a strong representation of the population.

The pie chart indicates the distribution of respondents based on their years of professional experience, with 54.40% representing more than 10 years of experience. It indicates that the majority of the workforce is experienced. With 17.8% falling under 1-3 years of experience, 7-10 years at 15.10% consists of individuals with moderate or mid-career professionals. The smallest group falls within a 4–6-year range (5.50%), and 8.20% falls within less than 1 year of experience, indicating newer entrants and developing professionals.

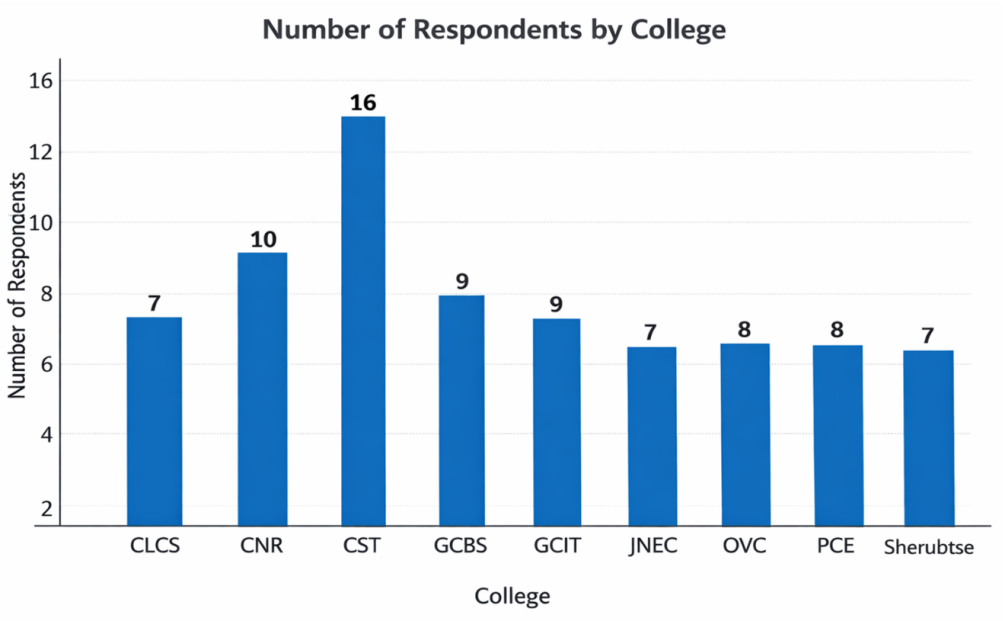


Figure 1: Work Experience

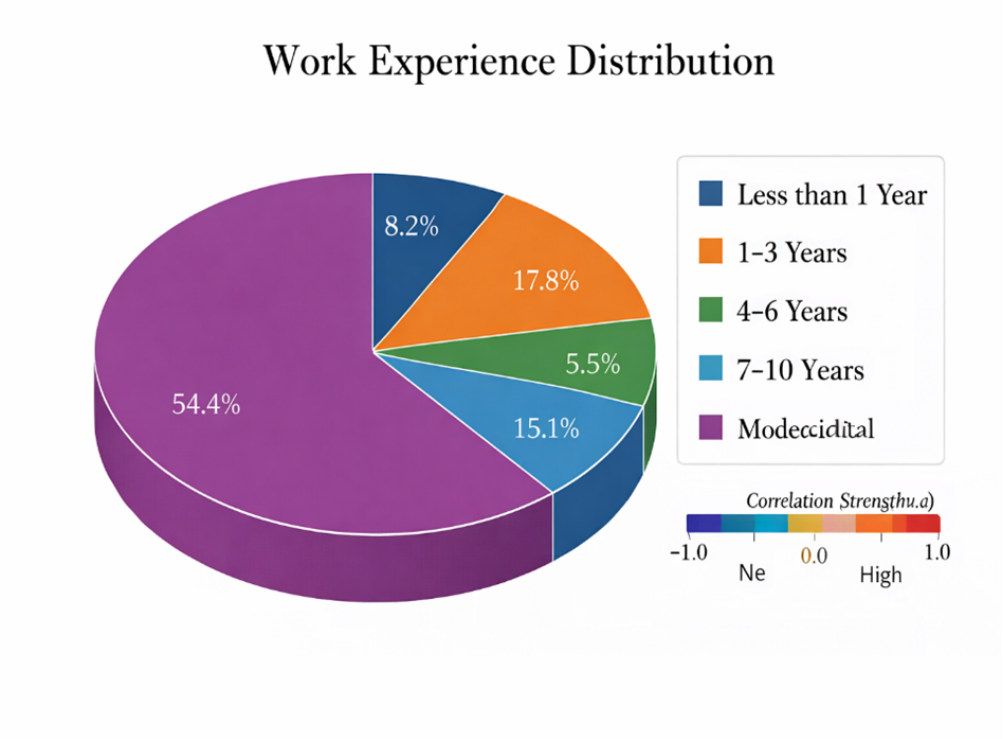


Figure 2: Work Experience

4.2 Budget Allocation Perceptions

The figure depicts the variables and their response rate for 73 participants. 45.2% of participants are somewhat familiar with the process, but 12.3% are not familiar at all, indicating a need for more exposure. About the guidelines, 50.7% find them somewhat clear, while 9.6% feel they are not clear at all, highlighting areas for improvement. Regarding input into the process, 45.2% responded moderate input, though 4.1% say they have no input, suggesting extra exposure could be appreciated. However, budget sufficiency remains a concern, as 32.9% disagree that the budget is sufficient, and 20.5% strongly disagree, indicating financial constraints across the colleges. Finally, the delays occur rarely for 39.7% and occasionally for 34.2%, though 16.4% experience frequent delays. Considering these insights, there is a need for improved communication, process efficiency, and budget allocation. Moreover, Spearman's Rank Correction among the variables with the year of experience has also been calculated to test the statistical significance, as illustrated in figure 3.

The correlation analysis presented above examines the relationship between respondents' work experience and key financial management variables among the 73 participants. The findings indicate a strong positive correlation between work experience and budget perception ($\rho = 0.85$, $p = 0.002$), suggesting that more experienced officials are more likely to perceive budget allocations as adequate.

Furthermore, work experience demonstrates a strong negative correlation with procurement delays ($\rho = -0.70$, $p = 0.015$), indicating that experienced personnel encounter fewer delays in procurement processes. Familiarity with procurement procedures exhibits a moderate positive correlation with work experience ($\rho = 0.65$, $p = 0.025$), implying that procedural understanding increases with professional experience. Similarly, the clarity of budget and procurement guidelines shows a significant positive relationship with work experience ($\rho = 0.60$, $p = 0.030$).

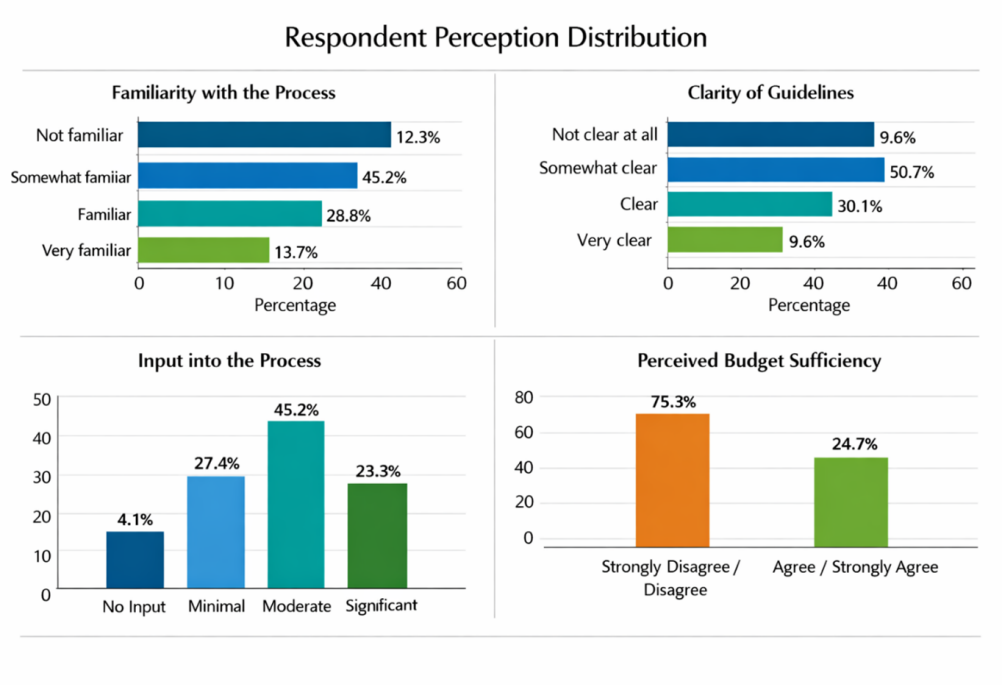


Figure 3: Perception Response Rate

In addition, participation in financial decision-making processes is positively associated with work experience ($\rho = 0.75$, $p = 0.005$), indicating that experienced officials contribute more actively to institutional decision-making. All observed correlations are statistically significant, demonstrating that increased work experience is associated with improved understanding of financial procedures, greater involvement in decision-making, enhanced guideline clarity, and reduced procurement delays.

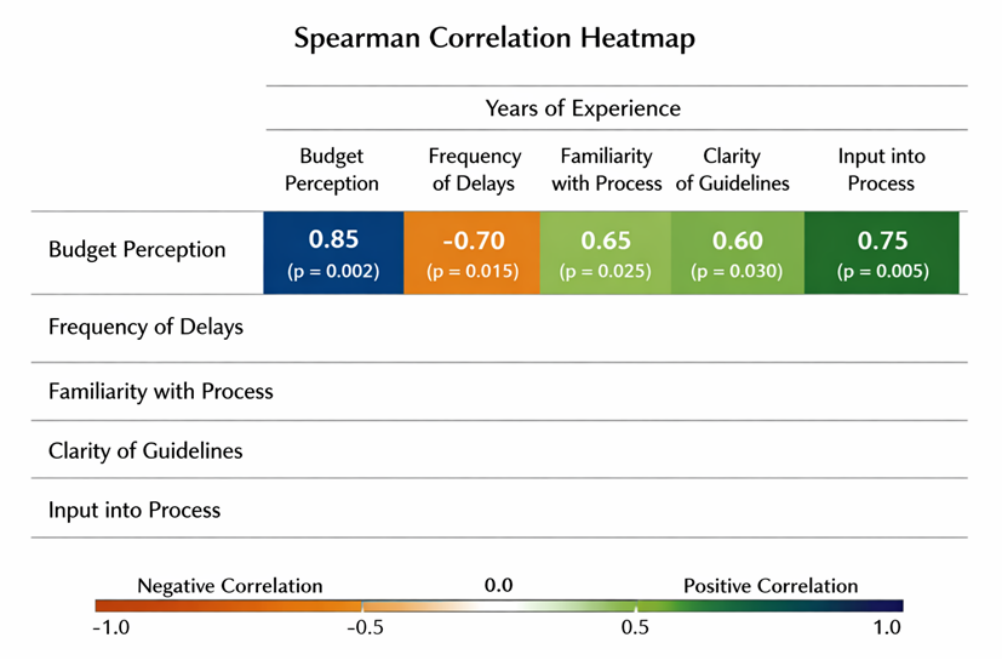


Figure 4: Spearman's Rank Correlation between experience and other variables

4.3 Procurement Processes

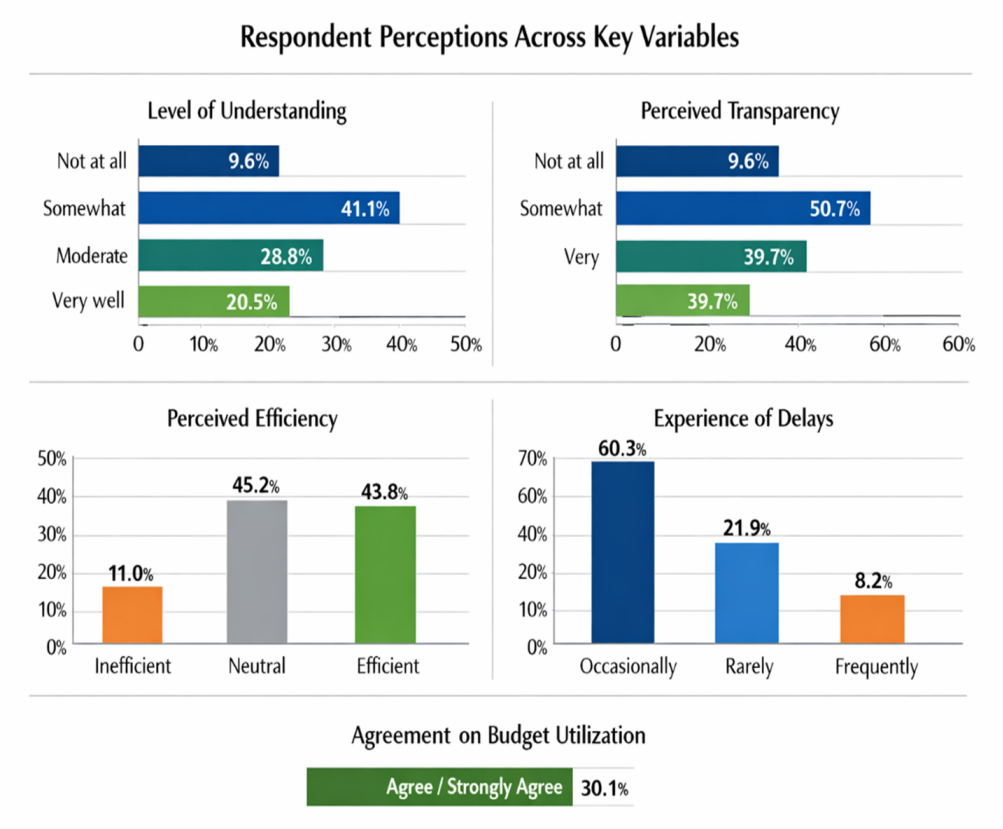
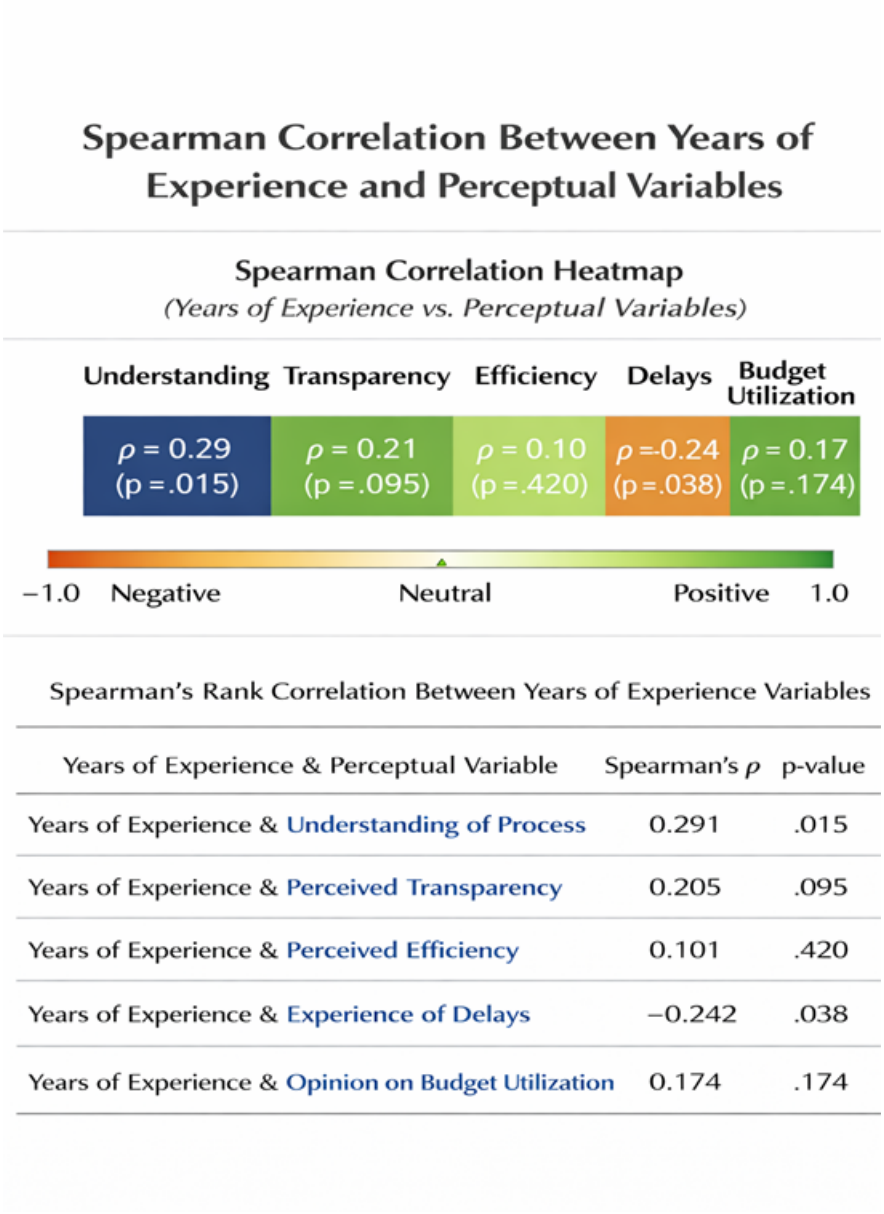


Figure 5: Response rates for procurement processes perceptions

The above figure shows five variables and their response rate of 73 respondents. 41.1% participants felt that they understood the procurement process as "somewhat", while 28.8% considered their understanding was moderate, and 20.5% believed they understand it very well. Only 9.6% have no understanding at all. For transparency perceived, about 50.7% viewed the process as favourable and somewhat transparent, and 39.7% as very transparent. In contrast, 9.6% viewed it as not transparent at all. Efficiency's response rate was 45.2% as neutral and 43.8% as efficient, while 11.0% perceived it as inefficient, and none rated it as very efficient. Regarding the delays, 60.3% experience them occasionally, 21.9% rarely, and smaller groups report frequent delays (8.2%) and 9.6% never experienced delays. However, no respondents indicated they always encounter delays. Finally, on budget utilisation, 45.2% remain neutral, 27.4% agree with positive statements about the utilisation, but 5.5% strongly disagree, and only 2.7% strongly agree. In brief, the data depicts that most participants have a moderate understanding of the procurement process, consider the process as transparent and efficient, while experiencing occasional delays.

Besides, the correlation between work experience and other variables is also tested using Spearman's Rank Coefficient as illustrated in the figure 6.



Spearman's Rank Correlation Between Years of Experience Variables

Years of Experience & Perceptual Variable	Spearman's ρ	p-value
Years of Experience & Understanding of Process	0.291	.015
Years of Experience & Perceived Transparency	0.205	.095
Years of Experience & Perceived Efficiency	0.101	.420
Years of Experience & Experience of Delays	−0.242	.038
Years of Experience & Opinion on Budget Utilization	0.174	.174

Figure 6: Spearman's Rank Coefficient and p-value

However, the correlations between work experience and perceived transparency ($\rho = 0.205$, $p = 0.095$), perceived efficiency ($\rho = 0.101$, $p = 0.420$), and perceptions of budget utilization ($\rho = 0.174$, $p = 0.174$) were not statistically significant. These findings suggest that work experience alone does not significantly influence respondents' perceptions of transparency, operational efficiency, or budget utilization.

Overall, the results demonstrate that professional experience is significantly associated with improved understanding of procurement procedures and reduced perceptions of delays, while its relationship with transparency, efficiency, and budget utilization perceptions remains statistically insignificant.

4.4 Fund Utilisation

The figure depicts that a significant portion of respondents feel the effectiveness of fund utilisation, with 45% rating it as either effective or very effective, while 14.4% perceive it as ineffective or very ineffective, and about 19.5% remain neutral. Though in general, there is a favourable view, more

than half (58.5%) believe there is room for improvement, suggesting that potential recognition in fund management is critical for RUB. Besides, 41% perceive underutilisation of funds, indicating that a considerable segment views funds as not fully utilised, despite the majority (59%) not sharing this concern. With fund review, most respondents state that reviews happen frequently (30.5%) or occasionally (18.3%), with fewer highlighting that reviews occur always, rarely, or never. In general, there is a positive perception of fund utilisation and review practices; however, there is also an indication of notable awareness of underutilisation and opportunities for improvement in RUB.

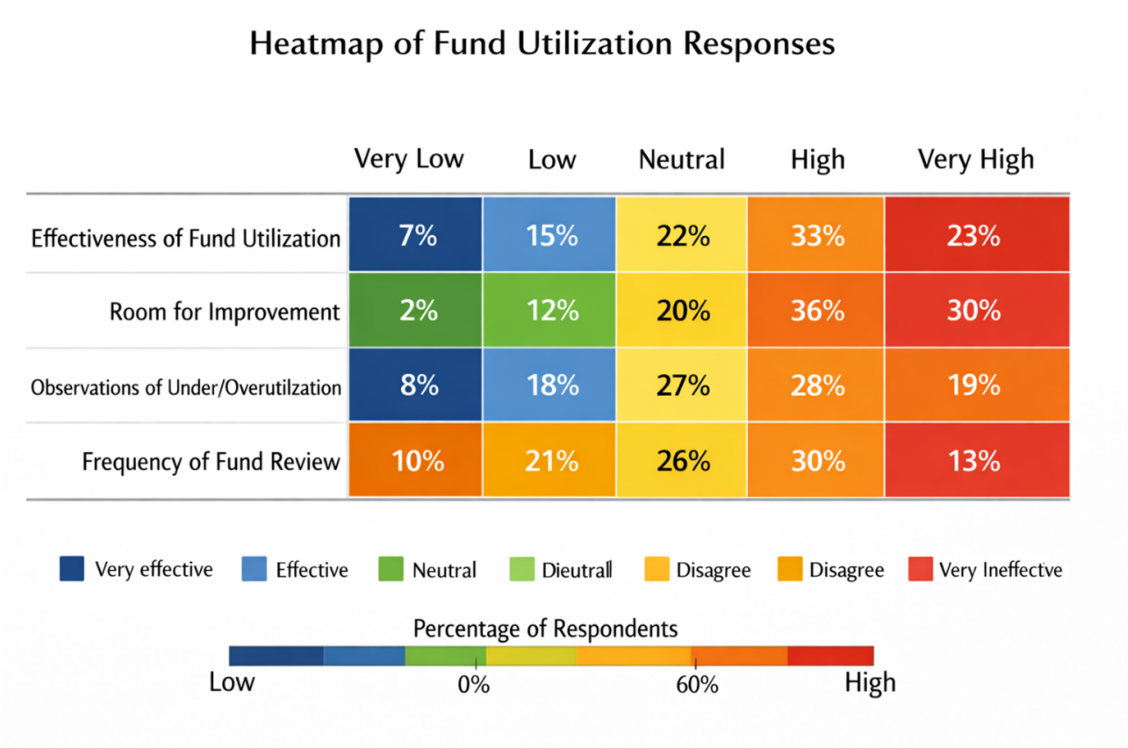


Figure 7: The response rates for fund utilisation

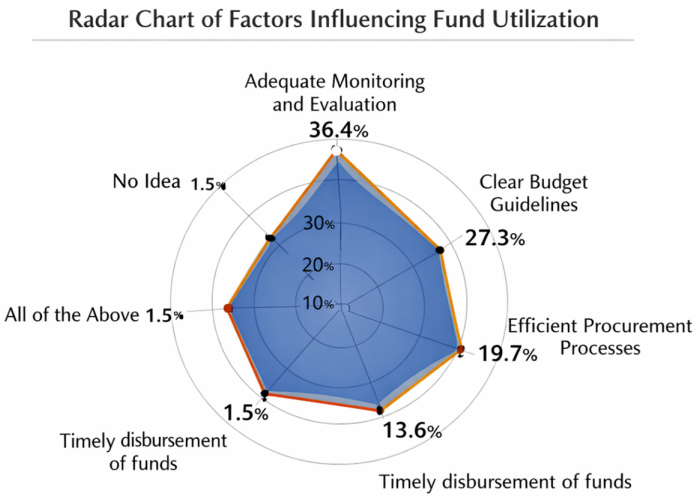


Figure 8: Radar Chart of Factors influencing the utilisation of funds

The largest portion (36.4%) cited adequate monitoring and evaluation as the most significant factor, followed by clear budget guidelines (27.3%) and efficient procurement processes (19.7%). 13.6% pointed to the timely disbursement of funds, while 1.5% had no idea, and another 1.5% believed all factors play a role. These findings suggest that strong financial oversight and clear guidelines are key to ensuring effective fund utilisation.

4.5 Hypothesis Testing

4.5.1 RQ1/H1α: Budget Allocation and Fund Distribution

A Chi-square test of independence was conducted to examine the association between respondents' roles and their perceptions of the fairness of budget distribution across the Royal University of Bhutan (RUB) constituent colleges. The analysis revealed a statistically significant association ($\chi^2 = 10.41$, $df = 20$, $p = 0.042$), indicating that perceptions of budget distribution fairness vary significantly across respondent roles.

Consistent with the interpretation of statistical hypothesis testing discussed by Parkhurst [24], the significance of the test provides evidence of an association rather than proof of a causal relationship. Accordingly, the null hypothesis was rejected, and Hypothesis H1a was supported, indicating that the budget allocation process significantly influences the perceived distribution of funds across RUB constituent colleges.

4.5.2 RQ2/H1β: Procurement Delays and Fund Utilization

The logistic regression analysis was employed to analyse procurement delays as illustrated below:

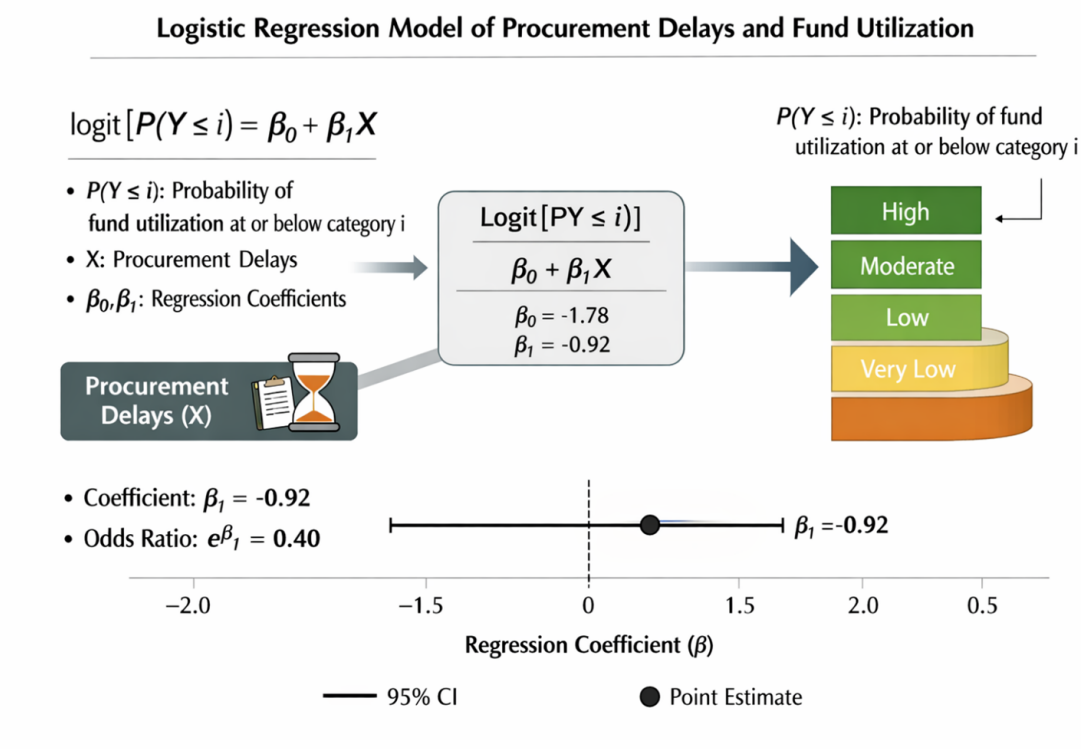


Figure 9: Estimated regression coefficients

Since β_1 is negative ($\beta_1 = -0.92$), the results indicate that an increase in procurement delays reduces the likelihood of efficient fund utilization. This demonstrates a significant negative relationship between procurement delays and fund utilization efficiency, where prolonged procurement

processes are associated with lower effectiveness in utilizing allocated funds. This finding is consistent with Iriowen *et al.* [11], who reported that procurement inefficiencies and delays negatively influence budget efficiency and resource utilization.

Therefore, Hypothesis H_{1b} is supported, confirming that procedural delays and communication gaps significantly hinder timely and effective fund utilization. The negative effect of procurement delays is further reinforced by the estimated odds ratio, which indicates a reduced likelihood of achieving efficient fund utilization as procurement delays increase.

5 RQ3/H1c: Strategic Alignment and fund utilisation

Spearman's Rank Coefficient is between perceived budget alignment with strategic goals and fund utilisation effectiveness.

The Spearman's rank-order correlation coefficient ($\rho = 0.83$) indicates a strong positive relationship between perceived budget alignment with institutional strategic goals and the effectiveness of fund utilization. This finding suggests that when respondents perceive budget allocation and procurement practices as better aligned with strategic objectives, the effectiveness of fund utilization tends to be higher.

The correlation analysis provides support for Hypothesis H_{1c}, indicating that alignment between financial practices and institutional goals is significantly associated with improved fund utilization effectiveness at the Royal University of Bhutan (RUB). This result is consistent with the findings of Noor *et al.* [15], who reported a significant positive relationship between budget allocation practices and budget utilization in a Malaysian public university, emphasizing the importance of strategic alignment in improving financial resource management.

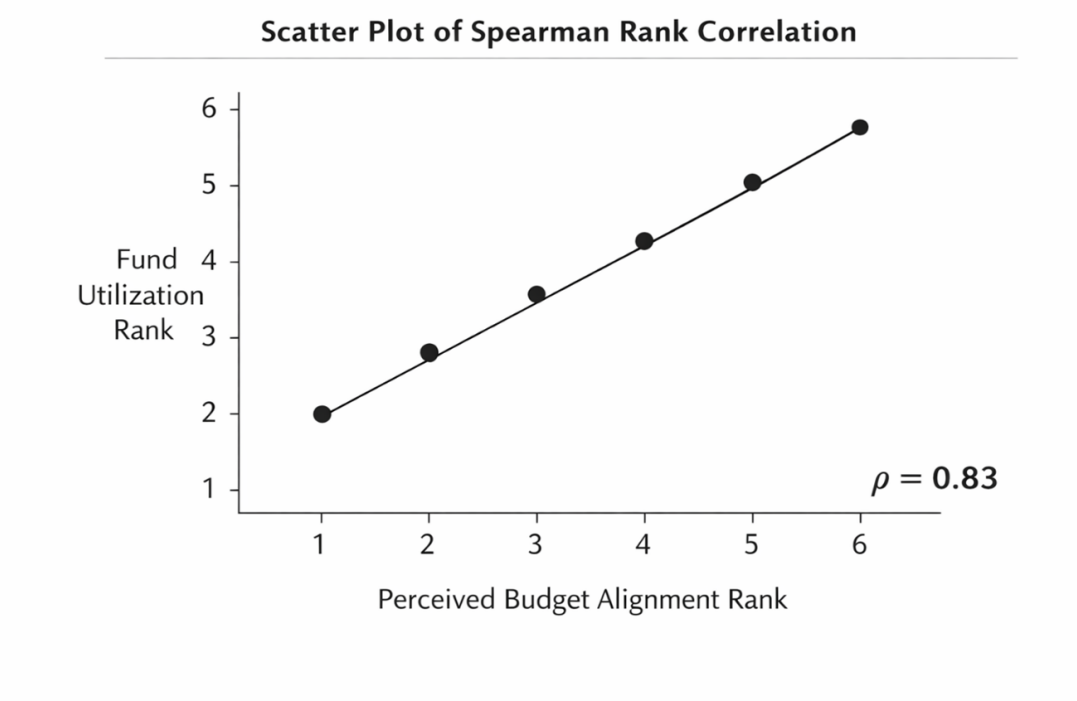


Figure 10: Scatter Plot of Spearman's Rank Coefficient

5.1 Discussion

5.2 Interpretation of Key Findings

5.3 Budget allocation and fund distribution (H1a supported)

The significant Chi-square result ($p = 0.042$) indicates that the method of budget allocation—whether top-down, participatory, or performance-based—is significantly associated with how funds are distributed among RUB constituent colleges. This finding aligns with Grewal and Dharwadkar [8] and Johnson [12], who argued that participatory budgeting mechanisms promote equitable resource distribution and enhance stakeholder involvement. However, the relatively weak strength of the association ($\chi^2 = 10.41$) suggests that other factors, such as institutional priorities, historical allocation patterns, and administrative influences, may also contribute to variations in fund distribution.

5.3.1 Procurement delays reduce fund utilization (H1B supported)

The negative regression coefficient ($\beta = -0.92$) and odds ratio (OR = 0.40) indicate that an increase in perceived procurement delays reduces the likelihood of effective fund utilization. Specifically, for each unit increase in perceived procurement delays, the odds of achieving effective fund utilization decrease by approximately 60%. This finding is consistent with Iriowen *et al.* [11] and Obanda [16], who identified procurement inefficiencies, procedural constraints, and compliance-related challenges as significant barriers to effective financial resource utilization. The results suggest that procurement delays represent a critical constraint affecting timely and efficient fund utilization within RUB constituent colleges.

5.3.2 Strategic alignment strongly correlated with fund utilization (H1c supported)

The Spearman's rank correlation coefficient ($\rho = 0.83$) indicates a very strong positive relationship between the perceived alignment of budget allocation and procurement practices with RUB's strategic goals and the effectiveness of fund utilization. This finding suggests that when financial practices are perceived to be aligned with institutional objectives, the effectiveness of fund utilization tends to improve. The result supports the findings of Noor *et al.* [15], who reported a positive relationship between budget allocation practices and budget utilization in higher education institutions. Therefore, the findings reinforce the importance of strategic budgeting and aligning financial management practices with institutional goals to enhance resource utilization effectiveness.

5.4 Qualitative Themes (Supporting Interpretation

Three open-ended questions were asked on procurement practices, budget allocation, and fund utilisation. From their responses, the following key themes are identified as follows:

5.4.1 Budget Allocation and Strategic Alignment

Regarding the budget allocation and strategic alignment, most respondents felt the importance of strengthening budget planning to better align with RUB's strategic objectives. For ensuring optimal allocation of resources, adopting performance-based budgeting and establishing clear and structured guidelines were highlighted as key recommendations. Similarly, some participants expressed concerns regarding inadequate funding, which they perceived was compromising academic operations and limiting support for student resources. As one of the respondents aptly noted, "Budget should be planned strategically, ensuring funding is allocated in a way that directly supports university goals".

5.4.2 Procurement Efficiency and Transparency

A considerable number of respondents recommended the need for a separate RUB procurement procedure to improve budget utilization and financial efficiency. A few respondents called for increased transparency, emphasizing that overly rigid procedures were hampering timely acquisitions. As a result, to overcome such concerns, a full digitalisation of procurement systems was suggested, noting its potential for oversight and accountability. “Procurement delays negatively impact budget utilization. “A full digitalisation of the process and allowing flexibility in procurement decisions can help”, was what one of the respondents perceived.

5.4.3 Monitoring and Evaluation Mechanisms

As one of the respondents rightly noted, “frequent financial audits and monitoring should be strengthened to ensure funds are used efficiently.” This indicates a strong need for financial oversight through timely monitoring, audits, and accountability frameworks. Likewise, some pointed out that a budget utilisation review may be conducted regularly to prevent underutilization and irregularities, besides annual auditing. On the contrary, some respondents noted that decentralizing budget decisions to empower individual departments might increase effectiveness.

5.4.4 Training and Capacity Building

The respondents also identified training and capacity building as one of the themes, emphasising, the lack of awareness and training among the officials handling budget and procurement makes it difficult to handle the task. For that, the workshops on financial management and procurement would enhance them with better decision-making. Additionally, some also suggested that establishing a specialized procurement team would improve the implementation of procurement rules and regulations. One respondent stated, "Staff training in financial management is essential to avoid delays and inefficiency in fund utilization."

5.4.5 Institutional Policy and Governance

The last theme is institutional policy and governance, where most respondents expressed concerns over bureaucratic barriers in both the procurement and budget approval processes. For maintaining its flexibility, a policy reform is suggested, considering stakeholders’ consultations in budget planning for inclusive decision-making. As one respondent noted. " Revising procurement policies and reducing rigid bureaucratic processes can enhance budget efficiency”.

5.5 Comparison with Existing Literature

The findings of this study differ from earlier research by Abogun and Fagbemi [1], which reported no significant relationship between budgeting methods and fund utilization. This variation may be attributed to differences in institutional contexts, particularly the smaller and more centralized governance structure of RUB, where budget allocation approaches may have a more direct influence on resource distribution and utilization.

Conversely, the strong relationship identified between procurement processes and fund utilization is consistent with findings from public universities in Ghana and Uganda. Appiah and Ezeh [6] and Basheka and Bisangabasaija [7] similarly reported that procurement practices significantly affect institutional financial performance and resource utilization. These similarities suggest that procurement-related challenges, including procedural delays, compliance requirements, and operational inefficiencies, represent common constraints affecting effective fund utilization across public higher education institutions.

5.6 Limitations

The study was subject to several limitations that should be considered when interpreting the findings. First, the study relied partly on perception-based data. Although this was supplemented by audit reports, a substantial proportion of the variables was based on respondents' self-reported information, which may introduce as degree of subjective bias. Second, the sample size, while statistically adequate(n-73), was relatively small. As a result, caution is needed when generalizing the findings beyond the studied context, particularly to other small countries or comparable academic institutions. Finally, the study employed a cross-sectional research design, capturing data at a single point in time. This limited the ability to draw strong causal inferences between variables. Future research using longitudinal designs could provide deeper insights into causal relationships and changes over time.

6 Recommandations

In this section, key recommendations for enhancing budget allocation and procurement efficiency were provided based on the findings of the study and aimed at addressing the current shortcomings in the procurement process and financial oversight across the colleges. Integrating these recommendations into the existing system might strengthen colleges' financial governance and ensure resources are effectively utilised to support academic excellence.

6.0.1 Strengthen Budget Planning and Strategic Allocation (Addressing RO1 RO3)

Evidence from the survey indicates that 61% of respondents perceive existing guidelines as unclear, as RUB's budget process is guided by the Ministry of Finance and emphasises the need for a separate budget policy framework. And suggested that the RUB may adopt a structured and performance-based budgeting approach, aligning with the institutional priorities and measurable impact indicators for ensuring appropriate financial allocations. For effective fund distribution and greater transparency purposes, having separate budget guidelines might improve decentralisation and periodic consultations with relevant officials across the colleges.

6.0.2 Improve Procurement Efficiency (Addressing RO2)

Around 65% of respondents reported procurement delays in their workplace and observed inefficiencies in acquisition processes. With the existing e-GP system, an integration of an automated tracking system and streamlining workflows can reduce unnecessary bureaucratic barriers. In addition, adopting a vendor negotiation model and revising procurement protocols to allow greater institutional flexibility might further optimise procurement decisions while maintaining compliance with regulatory frameworks.

6.0.3 Enhancing Financial Monitoring and Accountability

To minimize instances of budget underutilization and financial inefficiencies, the university should establish a comprehensive monitoring and auditing framework. Regular financial audits, supported by data-driven decision-making tools, can provide real-time insights into fund utilization patterns and enable timely corrective actions. The reliability analysis of the survey instrument, measured using Cronbach's alpha ($\alpha = 0.79$), confirmed acceptable internal consistency among the responses. This reliability level provides a strong foundation for evidence-based financial governance and supports the use of the collected data for informed decision-making.

6.0.4 Capacity Building

Investment in professional development programs for financial personnel can empower departments with critical budgeting and procurement expertise. Findings indicate that 28% of survey respondents advocate for increased financial literacy training. Establishing dedicated financial advisory teams within colleges and conducting periodic workshops on fiscal accountability and procurement efficiency will cultivate institutional competence in financial management.

6.0.5 Policy and Governance Reforms

To address procedural rigidities, RUB must reassess its financial governance structures and explore decentralised decision-making models for budget execution. The thematic analysis reveals that 41% of respondents recommend digital procurement reforms, while 47% emphasise the need for structured budget planning. Benchmarking strategies from similar institutions suggest that implementing data-driven budgeting and procurement automation could yield a 20-30% efficiency gain, further solidifying the case for targeted policy reforms.

7 Conclusion

This study empirically investigated the relationship between budget allocation, procurement processes, and fund utilization effectiveness at the Royal University of Bhutan (RUB). The findings from the statistical analyses demonstrate that the budget allocation method significantly influences fund distribution, thereby supporting Hypothesis H_{1a}. Similarly, procurement delays were found to have a significant negative effect on fund utilization efficiency, providing support for Hypothesis H_{1b}. Furthermore, the strong positive correlation between perceived alignment of financial practices with institutional strategic goals and fund utilization effectiveness supports Hypothesis H_{1c}.

Although the study identified a strong relationship between effective procurement practices and improved fund utilization, challenges related to budget clarity remain evident, with 61% of respondents indicating that budget allocation guidelines were unclear. The thematic analysis further revealed several institutional challenges, including inadequate monitoring mechanisms, limited training opportunities, and bureaucratic constraints that affect efficient financial management.

To address these challenges, strategic interventions including performance-based budgeting, digital procurement systems, enhanced financial monitoring, governance reforms, and capacity-building initiatives are recommended. Implementing these measures can strengthen financial governance, improve resource allocation, and enhance accountability within RUB constituent colleges. These improvements will contribute to sustainable financial management practices that support the university's long-term academic and operational objectives.

This study contributes to existing knowledge by providing one of the first mixed-methods investigations examining the interrelationships among procurement delays, budget clarity, and fund utilization effectiveness within the Bhutanese higher education context. The empirical evidence generated from this research provides context-specific benchmarks to support evidence-based policy formulation and financial management reforms.

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