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Supplier monitoring and procurement performance in the public sector in Tanzania: the moderating role of contract management difficulty

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Abstract

Purpose – This study aims to examine the effect of supplier monitoring on procurement performance in the Tanzanian public sector, as well as how contract management difficulty moderates the effect of supplier monitoring on procurement performance.

Design/methodology/approach – In this paper cross-sectional data were collected from 179 Tanzanian public procuring organizations using a structured survey questionnaire. Confirmatory factor analysis (CFA) and the PROCESS macro were used to analyse the collected data.

Findings – Supplier monitoring has a positive and significant relationship with procurement performance in terms of cost reduction, lead times and buyer satisfaction. Furthermore, contract management difficulty has a negative moderating effect on the relationships between supplier monitoring and procurement performance dimensions.

Research limitations/implications – Because public procurement is governed by laws and procedures, generalization of results should be done with caution. This is because the study is currently limited to Tanzanian public procurement. Apart from contract management difficulty, future research can look at other factors that may be needed to moderate the link between supplier monitoring and procurement performance.

Practical implications – Procurement practitioners must monitor major suppliers' timeliness, product quality and order accuracy in order to improve procurement performance. Furthermore, proper contract management is required, which necessitates effectively reinforcing procurement contract managers' responsibilities and providing contract management training for practitioners in order to control anomalies when suppliers and contracts are involved.

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Originality/value – By adding a moderating variable, the study adds to the literature on supplier monitoring in public procurement and the on-going debate on supplier monitoring and performance.

Keywords Contract management difficulty, Performance, Procurement, Public procurement, Procurement performance, Supplier monitoring

Paper type Research paper

1. Introduction

Public procurement is the government function that is responsible for acquiring goods, services and works. The government conducts public procurement to boost the aspect of service delivery to the public. Thus, the function needs to be well managed as poor management of procurement activities may result in meagre services to the citizens. Also, ineffective procurement can result in a loss of about a quarter of the $13tn that is directed towards public procurement worldwide (Gill, 2022). The function remains critical because it accounts for almost 12% of the gross domestic product (GDP) in Organization for Economic Co-operation and Development (OECD) countries (OECD, 2021), and more than 30% of the GDP of most African countries (Changalima, Ismail, & Mchopa, 2021; Djankov, Islam, & Saliola, 2016). Also, the function creates markets for small and medium-sized businesses viewed as suppliers. These suppliers enable responsible governments to provide goods, services to the general public. But public buyers must monitor the suppliers they engage to make sure they deliver the goods and services that are needed.

Supplier monitoring continues to be a critical activity in supplier management (Akamp & Müller, 2013; Yang & Zhang, 2017). It entails the activity of reviewing and checking the available potential suppliers to establish their adherence to the buyers' requirements. Both parties can correct anomalies through supplier monitoring. Occasionally, supplier monitoring is limited to ensuring that engaged suppliers perform according to the buyer's specifications. Also, monitoring can be used to mitigate the risk of delayed delivery. This risk occurs when a supplier fails to complete assigned work on time, resulting in the failure to deliver the required quantities of materials on time (Dixit, 2022). Thus, monitoring enables buying organizations to increase their chances of ensuring on-time supply delivery in public procurement activities. While supplier monitoring is critical for procuring organizations, the existing literature remains inconclusive due to mixed findings.

For example, Li, Ye, Sheu, and Yang (2018), Maestrini, Luzzini, Caniato, and Ronchi (2018) and Shafiq, Johnson, and Klassen (2022) demonstrated a significant association between supplier monitoring and performance, while Akamp and Müller (2013), Subramaniam, Iranmanesh, Kumar, and Foroughi (2020) and Yang and Zhang (2017) presented insignificant relationships. These inconsistencies in the literature underscore the importance of further research into the role of supplier monitoring in performance across multiple dimensions. Our current research focuses on procurement performance as it relates to the outcomes of procurement activities conducted within organizations and by engaged suppliers. These outcomes may be related to the delivery of goods, improving lead times, meeting procurement objectives and buyer satisfaction. To achieve these outcomes, buying organizations should strive to ensure that supplier management is carried out effectively (Akamp & Müller, 2013; Yang & Zhang, 2017). But when suppliers are involved, buyers should use effective monitoring and good procurement contract management to make sure suppliers deliver goods and services as needed.

Contract management entails the buyer's activities during a contract period to ensure that all parties to the contract fulfil their contractual obligations (Baily, Farmer, Crocker, & Jessop, 2022). The contract aims at clearly elaborating on the expectations and deterrents to minimize deviations. In some cases, buyers may use contracts to exert control over the self-interests of engaged suppliers (Lu, Zhang, & Zhang, 2016). A contract outlines contractual obligations relating to various aspects of the subject matter of the transaction. However,

buyers must continue to exert some effort to ensure that the supplier is performing satisfactorily. That is why supplier monitoring is widely used to ensure that the contract's terms and obligations are followed. Empirical research in procurement contract management focuses on a variety of contexts, including its role in value for money (Mchopa, 2015) and contract management issues at different levels (Oluka & Basheka, 2014; Rasheli, 2016). Literature shows that effective procurement contract management ensures suppliers meet buyer requirements (Changalima *et al.*, 2021).

However, procurement contract management is a difficult task (Oluka & Basheka, 2014; Public Procurement Regulatory Authority (PPRA), 2021). Thus, when organizations engage suppliers, they are obliged to do two main tasks: first, monitor engaged suppliers to ensure they perform as required; and second, overcome contract management difficulties. However, supplier monitoring has received insufficient attention in public procurement, particularly in developing countries such as Tanzania. Our study fills this gap by examining the effect of supplier monitoring on public sector procurement performance. Given the contradictions of supplier monitoring on performance, we examine the moderating role of contract management difficulty on the main relationships. Therefore, we address the following two research questions:

RQ1. Does supplier monitoring influence the procurement performance in the public sector in Tanzania?

RQ2. Does contract management difficulty moderate the role of supplier monitoring in procurement performance in the Tanzanian public sector?

The current study's main findings are twofold. First, the study found that supplier monitoring has a positive and significant effect on procurement performance; and second, contract management difficulty has a negative and significant moderating effect on supplier monitoring and procurement performance. Thus, the activity of monitoring suppliers determines the procurement performance of surveyed public procuring entities. However, contract management difficulties hampered the role of supplier monitoring in improving procurement performance.

The next section summarizes the existing literature, including theoretical and empirical perspectives for hypotheses development. The methodology is discussed in Section 3, and the findings are presented in Section 4. Section 5 contains the discussion and conclusions, while Section 6 presents the study implications. The last section provides the limitations and recommendations for further studies.

2. Literature review

This section presents the summary of the literature review, which includes a theoretical literature review as well as an empirical review for the development of the study's hypotheses.

2.1 The theoretical perspective

2.1.1 Agency theory. This theory describes the relationship between two parties. It was advanced by Stephen Ross and Barry Mitnick in 1973 and is characterized by a conflict of interests (Mitnick, 1975; Ross, 1973). It proposes that the principals engage the agents to perform certain activities on their behalf. There are difficulties in the agency relationship, and monitoring is useful for resolving them. Therefore, principals can ensure that their agents are not acting in their self-interests by closely monitoring their activities or through contractual relationships (Panda & Leepsa, 2017). Therefore, it proposes to comprehend impending issues involving suppliers (agents) and buyers (principals). Contractual relationships aid in the resolution of partial conflicts, and so preferences between buyers

(representing the organization's interests) and suppliers (representing individuals' interests) can be reconciled and resolved. Buyers can ensure that suppliers do not act in their own interests to ensure that their entities receive the intended benefits for the business by monitoring engaged suppliers and managing contractual relationships.

2.1.2 Transaction cost theory. It assumes that if a trade is possible and transaction costs are low enough, bargaining will produce an efficient outcome (Coase, 1937). Hence, organizations can improve their economic efficiency by lowering exchange costs (Williamson, 1979). It is possible for the buyer's and major suppliers' goals to be at odds and for information flow between them to be asymmetrical; in this case, the buyer will rely on contractual arrangements to exert influence over the behaviour of suppliers (Zhao, Pan, & Song, 2018). Contracts, on the other hand, govern the bargaining process between the parties involved. They are negotiating regulators because they define the scope of work and the terms of the agreements. Brown and Potoski (2005) opined that the theory gives public officials a good way to handle contract management.

Contract management costs and the increased risk of contract failure may outweigh the potential benefits of contracts (Brown & Potoski, 2005). Ineffective contract management can lead to cost increases and project delays. Most contract management issues arise during the contract's development and implementation phases. Thus, managing contracts during these phases requires considerable expense and effort. The theory suggests that contract management difficulties reflect the costs and effort incurred by organizations in managing formal contracts with engaged suppliers (Williamson, 1993; Zhao *et al.*, 2018). This study suggests that if contract management difficulties are not addressed, an undesirable procurement outcome may occur.

2.2 The empirical perspective and hypotheses development

2.2.1 Supplier monitoring and performance. Monitoring helps to maximize the contributions made by suppliers in terms of performance (Song, Sophie, Montabon, & Xu, 2018; Subramaniam *et al.*, 2020). Supplier monitoring allows organizations to track their suppliers' performance while also encouraging continuous improvement (Chin, Yeung, & Pun, 2006). In this regard, supplier monitoring remains a critical activity for any organization that relies on suppliers to deliver materials for day-to-day operations. The literature on monitoring and performance is divided into two categories. The first stream establishes the positive effect of monitoring on performance (Maestrini *et al.*, 2018; Shafiq *et al.*, 2022). The second body of literature establishes no significant relationship between monitoring and performance (Akamp & Müller, 2013; Subramaniam *et al.*, 2020; Yang & Zhang, 2017). Despite the inconsistencies in the previous studies, supplier monitoring is a critical function in organizations and has been linked to performance in previous studies. Also, these inconsistencies highlight the need for additional research into the role of supplier monitoring in performance across other dimensions. Our current research focuses on cost reduction, lead times and buyer satisfaction as indicators of procurement performance in the public sector in Tanzania. Thus, we operationalize the following hypotheses:

H1. Supplier monitoring significantly relates to cost reduction in public procurement.

H2. Supplier monitoring significantly relates to lead times in public procurement

H3. Supplier monitoring significantly relates to buyer satisfaction in public procurement

2.2.2 The moderating role of contract management difficulty. The literature indicates that contracts are critical in ensuring that buyers manage suppliers in accordance with their specifications (Changalima *et al.*, 2021). The same contract can be used as a safeguard to

ensure that suppliers are constantly monitored. Our study posits that monitoring suppliers can be accomplished by examining how suppliers are managed through engaged contracts to enhance performance improvements. Contract management entails a number of activities that require the buyers' attention. During this time, the contractor's performance is monitored to ensure that it meets the buyer's specifications; occasionally, the contract may be modified to accommodate necessary variations. In this aspect, contract management is necessary for the buyer to ensure that engaged suppliers meet the procurement deliverables (Baily *et al.*, 2022).

Yet, contract management is not always simple due to the nature of procurement activities and numerous interactions. There are studies highlighting the problems inherent in managing procurement contracts (Oluka & Basheka, 2014; Rasheli, 2016). Contract management difficulties are associated with the expense and effort incurred by the buying organization in developing and maintaining its formal contract with the suppliers (Handley & Benton, 2012). These difficulties are encountered by organizations that use contracts as safeguards against suppliers (Changalima, Mchopa, & Ismail, 2022). Our study posits that contract management difficulty aligns with the costs and necessary efforts that public organizations must make to ensure that effective contracts are developed and maintained to meet procurement deliverables. Consequently, public organizations can benefit from close supplier monitoring when they are experiencing low levels of contract management difficulty. This study examines contract management difficulty as the moderator of the relationship between supplier monitoring and performance. Hence, we propose the following:

H4a. Supplier monitoring on cost reduction in public procurement is moderated by contract management difficulty.

H4b. Supplier monitoring on lead times in public procurement is moderated by contract management difficulty.

H4c. Supplier monitoring on buyer satisfaction in public procurement is moderated by contract management difficulty.

2.3 Conceptual framework

Figure 1 demonstrates the relationships between supplier monitoring and the dimensions of procurement performance (H1, H2 and H3). Also, contract management difficulty alters the relationship between supplier monitoring and dimensions of procurement performance (H4a, H4b and H4c).

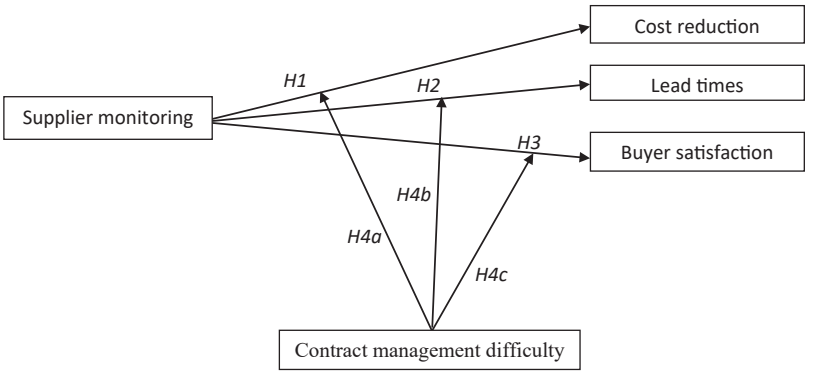

Figure 1.
Conceptual framework

3. Methodology

3.1 Research design and sampling

This study employed a cross-sectional design because data was collected only once. This design ensures that a broad snapshot is captured to make inferences about the population's interests that researchers need to investigate. Simple random sampling was applied to pick public procuring entities in five regions of Tanzania, namely Dar es Salaam, Arusha, Dodoma, Mbeya and Tanga. For each public procuring entity, the head of the procurement department was targeted as a unit of inquiry. Therefore, the target population was the total number of public procuring entities from the surveyed regions, which was 336 (PPRA, 2021). The Sloven formula for calculating a sample size was applied and resulted in a sample size of 183. However, the study obtained only 179 responses from the surveyed entities that were included in the final analysis. This equates to a response rate of 97.81%.

3.2 Data collection

Questionnaires were personally delivered to the selected respondents. The drop-off/pick-up technique was chosen for distributing questionnaires during data collection as it is recommended for reducing potential nonresponse bias by increasing the number of significant responses. This technique enabled the researchers to achieve a 97.81% response rate. The technique also allows researchers to speak directly with participants for a more accurate eligibility determination (Allred & Ross-Davis, 2011).

3.3 Measurements, reliability and validity

The measurement items for the study variables were considered based on the existing literature. Items for supplier monitoring were adapted from Maestrini *et al.* (2018). Measurements for contract management difficulty were adapted from Handley and Benton (2012) and Zhao *et al.* (2018). For cost reduction, they were adapted from (Patrucco, Agasisti, & Glas, 2021; Wachiuri, 2018). Items from Wachiuri (2018) were used for lead times, and items from Akamp and Müller (2013) and Wachiuri (2018) were used for buyer satisfaction. The survey items employed in this study are attached in Appendix.

Cronbach's alpha coefficients are 0.941 for supplier monitoring, 0.844 for contract management difficulty, 0.908 for cost reduction, 0.868 for lead times and 0.898 for buyer satisfaction. The determined values of Cronbach's alpha for each variable were considered within the recommended values as they are greater than 0.7 for internal consistency reliability (Tavakol & Dennick, 2011). Similar to composite reliability (CR), the values obtained are 0.942 for supplier monitoring, 0.910 for cost reduction, 0.871 for lead times, 0.902 for buyer satisfaction and 0.856 for contract management difficulty. Again, these values are in the recommended range of above 0.7. The Fornell-Larcker criterion was used for assessing discriminant validity under which a comparison was made between the square root of the average variance extracted (AVE) and the correlation of latent constructs (see Table 1). Convergent validity analyses the correlation between numerous indicators of the same concept in agreement. The AVE value should be more than 0.50 to be suitable for convergent validity (Fornell & Larcker, 1981).

	CR	AVE	MSV	MaxR(H)	Supplier monitoring	Contract management difficulty	Cost reduction	Lead times	Buyer satisfaction
Supplier monitoring	0.942	0.844	0.338	0.950	*0.919**				
Contract management difficulty	0.846	0.646	0.438	0.849	0.582	*0.804**			
Cost reduction	0.910	0.772	0.422	0.922	0.493	0.650	*0.879**		
Lead times	0.871	0.693	0.521	0.875	0.574	0.662	0.569	*0.832**	
Buyer satisfaction	0.902	0.755	0.521	0.913	0.543	0.576	0.502	0.721	*0.869**

Note(s):
MSV - maximum shared variance
MaxR(H) - maximum reliability
* denotes $\sqrt{AVE}$

Table 1. Fornell-Larcker criterion for discriminant validity

3.4 Common-method variance (CMV)

We evaluated the CMV using Harman's (1967) single-factor test to determine whether there was a common method bias. To determine if the majority of the variance was explained by a single factor, all items were included in the factor analysis with the unrotated factor option (Podsakoff, MacKenzie, Lee, & Podsakoff, 2003). Results from this analysis show that about 39.22% of the majority of the variance explained in the model was explained by a single factor. Because the value was less than 50%, common method bias did not pose a significant problem in our study.

3.5 Data analysis

A confirmatory factor analysis (CFA) was performed to determine whether the measurement model fits the collected data well. CFA extracts the latent construct from the other variables and shares the greatest variance with the variables connected to the latent construct (Fan *et al.*, 2016; Kyal, Mandal, Kujur, & Guha, 2022). The "PROCESS macro," a tool created by Andrew Hayes and incorporated into statistical package for social sciences (SPSS) version 25 was used to test moderation effects (Hayes, 2018).

4. Results

4.1 CFA and measurement model properties

The CFA analysis was carried out to validate the measurement quality of all latent variables that will be used in examining the relationships between the variables of the study. Therefore, it is used for factor structure verification and the outputs are used to examine different types of validity and the strength of employed items. The CFA results also show that the model fit indices are the Chi-square value over degrees of freedom (CMIN/DF) = 1.788, root mean square residual (RMR) = 0042, the goodness of fit index (GFI) = 0908, the normed fit index (NFI) = 0.935, the relative fit index (RFI) = 0.914, the incremental fit index (IFI) = 0.970, the Tucker–Lewis index (TLI) = 0.960, the comparative fit index (CFI) = 0.970 and the root mean square error of approximation (RMSEA) = 0.067, which are all within the recommended thresholds for model fit evaluation (Hu & Bentler, 1999).

4.2 Structural model and testing of hypotheses

Through Hayes' PROCESS macro v.4.0, we were able to test the moderating effects, especially by using the product term (Hayes, 2018). The β coefficients and their related statistical significance values as important model outputs were assessed to test the first three hypotheses. Results presented in Table 2 show that the effect of supplier monitoring

Variables and effects	Procurement performance											
	Cost reduction				Lead times				Buyer satisfaction			
	Coeff	se	t	p	Coeff	se	t	p	Coeff	se	t	p
Supplier monitoring	0.2867	0.0566	5.0685	****	0.3577	0.0573	6.2415	****	0.3575	0.0553	6.4587	****
Contract management difficulty	0.1955	0.0619	3.1598	0.0019	0.1158	0.0627	1.8474	0.0664	0.0630	0.0606	1.0412	0.2992
Int_1	−0.1082	0.0489	−2.2150	0.0281	−0.1731	0.0495	−3.4961	0.0006	−0.1128	0.0478	−2.3581	0.0195
R^2	0.2773			****	0.3343			****	0.2926			****
ΔR^2	0.0203				0.0465				0.0225			

Note(s): Int_1 denotes Contract management difficulty*Supplier monitoring
**** denotes $p < 0.01$

Table 2.
Regressions results on the relationships between study variables

on cost reduction was positive and significant ($\beta = 0.2867$ and $p < 0.01$). Furthermore, supplier monitoring had a positive and significant effect on lead times ($\beta = 0.3577$ and $p < 0.01$). Lastly, the effect of supplier monitoring on buyer satisfaction was positive and significant ($\beta = 0.3575$ and $p < 0.01$). All of these effects were treated at the condition of moderator = 0 (Hayes, 2018). These results show that all the first three hypotheses (H1, H2 and H3) were supported. Therefore, there is a significant positive effect of supplier monitoring on procurement performance in all dimensions (cost reduction, lead times and buyer satisfaction).

Furthermore, as shown in Table 2 and Figure 2, the interaction term (int_1) was statistically significant ($\beta = -0.1082$, $p < 0.05$) in our model, indicating that contract management difficulty was a significant moderator of supplier monitoring on cost reduction. This result supports the H4a of the study. In our model for supplier monitoring and lead times, int_1 was statistically significant ($\beta = -0.1731$, $p < 0.01$), indicating that H4b is supported. This result indicates that contract management difficulty significantly moderates the effect of supplier monitoring on lead times. Lastly, the study shows that contract management difficulty significantly moderates the relationship between supplier monitoring and buyer satisfaction. Table 2 shows that the int_1 was statistically significant ($\beta = -0.1128$, $p < 0.05$) in favour of H4c.

Lastly, this study also conducted a slope plot for the conditional effects, and the results are presented in Figures 3–5. It should be noted that the results are presented at a condition value of one standard deviation below the mean (−0.93), mean (0.0) and one standard deviations above the mean (+0.93), under which the former and latter provide the low degree and high degree level of the moderating variable (Hayes, 2018; Hayes & Rockwood, 2017). Therefore, results in both figures of slope analysis show that at a high degree of contract management difficulty, the effect of supplier monitoring on all dimensions of procurement performance is reduced and vice versa.

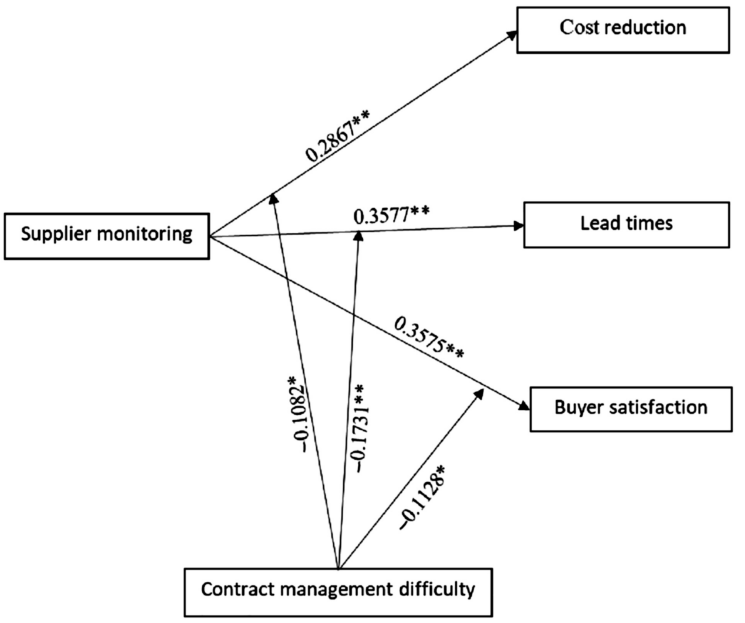

Figure 2.
Statistical model results

Note(s): *$p < 0.05$ and **$p < 0.01$

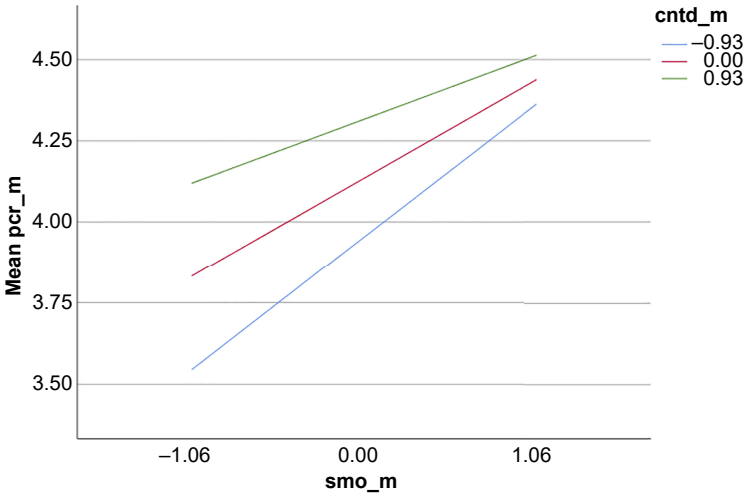

Figure 3.
Moderation effects of contract management difficulty on supplier monitoring and procurement cost reduction

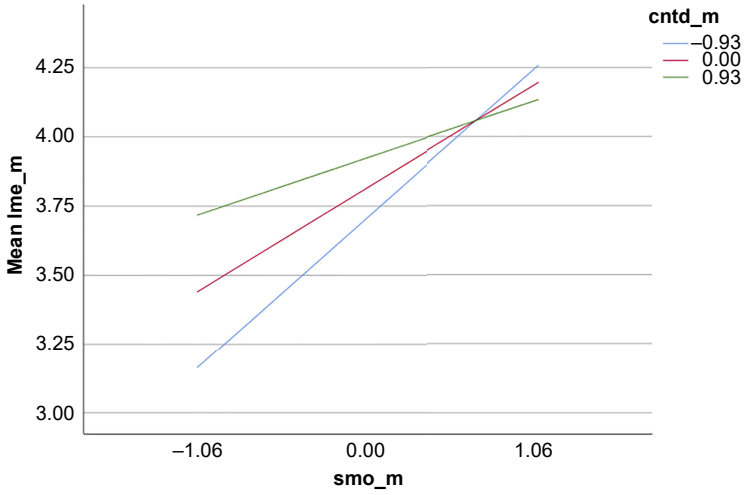

Figure 4.
Moderation effects of contract management difficulty on supplier monitoring and lead times

5. Discussion and conclusions

We used agency theory and transaction cost theory to empirically investigate the role of supplier monitoring in procurement performance in the Tanzanian public sector. We also investigate the moderating role of contract management difficulty on supplier monitoring and performance. Concerning its initial contribution, the study establishes that supplier monitoring is important for determining procurement performance in the public sector. The plausible explanation is that by monitoring suppliers, buying organizations can identify anomalies that affect overall procurement performance. When anomalies such as delays, costly suppliers and quality defects are rectified, buying organizations' performance improves. The results of Maestrini *et al.* (2018) and Shafiq *et al.* (2022), which found a significant relationship between monitoring and performance, back up these results.

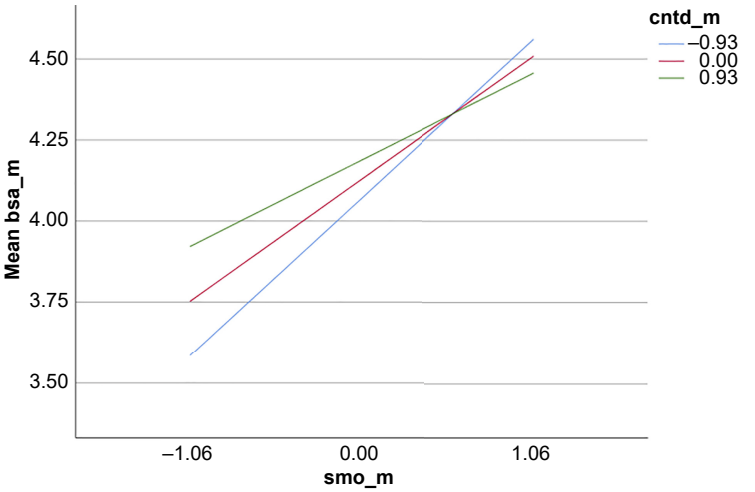

Figure 5.
Moderation effects of contract management difficulty on supplier monitoring and buyer satisfaction

Also, contract management difficulty moderates the relationship between supplier monitoring and procurement performance in the public sector. The findings are supported by existing knowledge as the negative moderating role of contract management difficulty has been reported in the literature (Zhao *et al.*, 2018). If the level of contract management difficulty is high, the effect of supplier monitoring on improving procurement performance is less effective. This study concludes that supplier monitoring can be accomplished more effectively and efficiently by focussing on procurement deliverables at a low level of contract management difficulties. Thus, difficulties related to contract management should be solved by making sure contracts are properly designed and by managing contract variations to account for anomalies that come up during contract execution.

6. Study implications

6.1 Theoretical implications

There are two major ways that our current study contributes to the literature on supplier management and public procurement. First, the study contributes to the on-going debate on the influence of supplier monitoring on performance. Supplier monitoring was examined in this aspect of the study to determine its impact on the performance of procurement functions in the public sector. This study adds to the existing empirical studies focused on examining the social performance of suppliers, general supplier performance and organizational performance (Akamp & Müller, 2013; Alghababsheh & Gallear, 2021; Yang & Zhang, 2017). Most of these previous studies centre on manufacturing firms and other private-sector industries. Manufacturers procure raw materials from suppliers, while public procuring organizations procure commonly used items and other related goods from suppliers to support day-to-day operations. Therefore, this study adds to the scant existing evidence in developing countries, especially Tanzania, and in the context of public procurement.

Second, many previous studies have examined the relationship between supplier monitoring and performance in various dimensions, with the majority of these studies producing inconclusive results (Akamp & Müller, 2013; Maestrini *et al.*, 2018; Subramaniam *et al.*, 2020; Yang & Zhang, 2017). The current study situates itself within public procurement and introduces contract management difficulty as a moderator for the relationships between

supplier monitoring and performance to contribute to the existing body of knowledge. Therefore, our study extends further to examine the moderating role of contract management difficulty in the relationship between supplier monitoring and performance to contribute to the on-going debate (Akamp & Müller, 2013; Li *et al.*, 2018; Maestrini *et al.*, 2018; Shafiq *et al.*, 2022; Subramaniam *et al.*, 2020; Yang & Zhang, 2017).

6.2 Practical implications

Our research provides some useful insights with practical implications for both managers and practitioners on monitoring engaged suppliers to improve procurement performance. First and foremost, practitioners should ensure that engaged suppliers deliver according to the buyer's requirements. This study can be effectively achieved through proper supplier monitoring practices. The practices of monitoring the timeliness, product quality and order accuracy should be looked at more closely because they are important for monitoring suppliers who take part in public procurement.

Secondly, contract management difficulties affect negatively the role of supplier monitoring on performance. In this regard, suppliers and contracts should be effectively managed to ensure fulfilment of contract deliverables. Therefore, necessary efforts should be in place to ensure that both suppliers and contracts are effectively controlled to guarantee the delivery of the deliverables intended by the buying organizations. This may be accomplished by effectively supporting procurement contract managers' responsibilities as well as by providing the necessary training for practitioners on contract management to control anomalies when suppliers and contracts are involved.

7. Limitations and areas for future research

This study relied on buyers' perspectives; hence, future research can be conducted to include suppliers' opinions, which would be beneficial. Also, since our sample is restricted to staff working in the Tanzanian public sector, conclusions about the generalizability of the findings should be qualified with care. Finally, the current research also focused on contract management difficulty as a moderating variable in the relationship between the focal predictor (supplier monitoring) and procurement performance in terms of cost reduction, lead times and buyer satisfaction. Future researchers can consider other procurement performance measurements and a further look at other moderating variables on the effect of supplier monitoring on procurement performance.

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(The Appendix follows overleaf)

Appendix
Survey items

Supplier monitoring

(1) We monitor product/service quality for our major suppliers

(2) We monitor delivery timeliness for our major suppliers

(3) We monitor order accuracy for our major suppliers

Contract management difficulty

(1) The time and efforts put into developing formal contracts with our suppliers are significant

(2) The costs associated with developing and maintaining formal agreements with our suppliers are significant

(3) Ensuring that our contracts adequately represent our evolving relationships with our suppliers requires substantial resources

Cost reduction

(1) We have significant financial reserve to cover all potential needs due to cost reduction

(2) Procurement costs have reduced

(3) Overhead costs have reduced

Lead times

(1) Our organization strategies focus on reducing lead time

(2) Our suppliers always meet the set date of deliveries

(3) We respond to user departments' orders in time

Buyer satisfaction

(1) We are very satisfied with our suppliers.

(2) Our complaints to engaged suppliers have reduced significantly

(3) If we had to start all over again, we would still choose the same suppliers

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