



DETERMINANTS OF CENTRALIZED PUBLIC PROCUREMENT EFFECTIVENESS: EVIDENCE FROM SELECTED ETHIOPIAN HIGHER PUBLIC EDUCATION INSTITUTIONS

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Received: 29 Sept, 2020

Accepted: 01 Nov, 2020

Published: 10 Dec, 2020

Abstract:

This study focuses on factors affecting centralized procurement system effectiveness in higher Ethiopian public educational Institutions. To achieve this objective the researchers employed the explanatory research design with a primary data sources from 82 employees through questionnaires and interview in purposively selected of public educational Institutions and Public property procurement team leaders of PPPDSA at federal level. The Pearson correlation analysis outcome showed that all explanatory variables were positively influencing the effectiveness of centralized procurement system but at different degree of correlation. The multiple linear regression analysis result of the study also revealed that public policy, control activities and staffs' educational competency of sampled public education institutions strongly and positively affected centralized procurement system effectiveness at 4.2 percent, 0.01 percent and 0.01 percent respectively. Similarly, monitoring and contract management affected the centralized procurement system effectiveness at 0.00.01 and 5.2 percent respectively. Therefore, to avoid the return of defect goods, malpractices, high compliance and untimely response of procurement orders, the PPPDS and sampled Ethiopian higher public educational Institutions should design very clear procurement planning criteria that fits the national procurement guideline, strong internal control system with good evaluation system. Moreover, it also advisable if the sampled Ethiopian higher public educational institutions train their staffs that partake in procurement processes and apply a computerized procurement system to support their procurement policies and further improve their overall centralized procurement system effectiveness.

Keywords:

Centralized procurement, Determinants, Effectiveness, Regression

1. Introduction

1.1. Introduction

In most countries and particularly in developing countries, the procurement function become one of the decisive and effective socio-economic elements that is able to influence decisions of government, quality of services for customers, honesty of workforces, accountably achieving organizational performance and development goals. Procurement is defined as acquiring goods, works and services from outside suppliers and it is expected to reflect public interests and overall development goals in an efficient manner (Hartmann et al., 2012). For a decade, public procurement has shown rapid demand changes and it became the showground where huge public resources are abundantly spent. For example; in Sub Saharan African Countries, out of the total public resources, procurement of goods, works and services accounts about 70 percent, in Ethiopia accounts more than 60 percent and as a globe it about 20 percent from the total public expenditure(Chekol & Tehulu, 2014). In another term, as compared to import economic activities, public procurement account for up to 50%-70% of total imports of developing nations (Yukins & Schnitzer, 2015) and public procurement also represents 18.42% of the world GDP(Mahmood, 2013). In this context, governments and government agencies remain the biggest entity that does procurement on a large scale and it is a business that attracts numerous of stakeholders (Munyao & Moronge, 2017). In Ethiopia, According to Council of Ministers Financial Regulation No 17/1997 proclamation and Ministry of finance and economic

development (2007) directives, public procurement and property disposal services have to be centrally performed by public property procurement and disposal service Agency. The main objective of this proclamation is to obtain goods, works, consultancy services and other services at the right quality, in the right quantity, from the right sources, at the right time, place and price to achieve organizational objectives. In another term, it was drawn to reduce corruption, increase competitiveness, bringing efficient utilization of government budget and other public resources. Even though the rationale for establishment of this agency is theoretically right, practically due to rapid changes of business environment, the competency levels of staffs involved in procurement and procedures of procurement itself the implementation of centralized public procurement system for public organizations have been facing serious challenges. According to Schultz & Søreide (2008), in centralized procurement there is the possibility of encouraging corruption while it can involve large-scale favoritism. Consequently, neither competition encouraged nor will lower price be obtained. A procurement policy defines the approval process for procurement contracts, roles of purchasers, to some extent procuring staffs conduct and operational issues, but it does not show which procurement procedures for which organizational structure, quality of internal communication system and workforce were not included. These pave a way for ineffectiveness procurement especially in public institutions. In 2018 research findings service delivery would significantly get better if procurement activities are decentralized as a result of enhanced participation ((Bahl & Bird, 2018). Therefore, public procurement system and processes are affected both internal and external challenges.

1.2. Statement of the Problem

In a many country that follows centralized public procurement and procurement processes have and will experience many challenges internally and externally. After review of the public procurement administrations in Ethiopia,(Ndercaj & Ringwald, 2014), revealed that deficiency of experienced management and procurement staffs, lack of clearly defined principal oversight, lack of transparency, and unfamiliarity of procurement process with recognized international or organizational arrangement, are the major bottlenecks of Ethiopian public procurement performances. To overcome these challenges and improve the public procurement system that substantially impact the growing economy of Ethiopia, the Federal Government of Ethiopia Procurement and Property Administration Proclamation No 649/2009 and pronounced centralized procurement system than previous decentralized procurement laws and procedures (Tolessa, 2016). Being following centralized procurement, in Ethiopia many public projects works' performances were extended from one to another year including the Great Ethiopian Renaissance Dam due to lack of effective procurement process; inadequacy of skills of procurement staffs, lack of well integrated procurement plans, poor procurement planning and management of the procurement process(Damte, 2018 ; Bulcha, 2018). On other way, these implies that ineffectiveness of Ethiopian procurement administration model and the effectiveness of responsible institutions PPPDS. (Mugambi, 2019) reviewed the role of central government procurement performance and found out that government agents have no well integrated communication channels with each other and this creates inappropriateness and ineffectiveness in procurement activities. Similarly, (Hiidensalo, 2016) elucidated that centralized procurement can lead to purchases of semi-standard goods and services as the specification settled by the end users. But, effectiveness of the procurement process is measured through achievement of key performance parameters namely the timeliness, quality and quantity of the purchase (Barasa, 2014). Due to centralized approach, the Ethiopian higher public educational institutions procurement system is characterized by poor procurement planning and PPPDS's untimeliness response for procurement orders, not purchase of a right goods, works and services. Based on these facts the main aim of this paper is to study the effectiveness of centralized procurement system in Ethiopian higher public educational institutions.

1.3. Specific Objectives of the Study

- To investigate the effect of procurement policy mechanisms on effectiveness of centralized procurement system
- To evaluate the effect of internal control system on effectiveness of centralized procurement system.
- To investigate how contract management influence performance of centralized procurement.
- To examine how Supplier relationship Management influence performance of centralized procurement.
- To analyse the effect of staff competence on effectiveness of centralized public procurement system.
- To analyse the impact of monitoring on performance of centralized public procurement effectiveness

2. Literatures Review

2.1. Definition Procurement and Procurement Performance

Public procurement is broadly defined as the acquisition and employment of goods, works and services, of goods, supplies, construction works and services by the public organizations using regional or federal resources such as state budget, domestic and foreign loan (Ambe & Badenhorst-Weiss, 2012). Centralized Procurement will exist in the situation where procurement is fully centralized when the key decisions on the purchase of goods, works and services (what, how and when) are adopted by the central procurement entity and it is formed with the aim of meeting the procurement needs of an organizations' divisions' (Thai, 2017). The procurement process does not only deal with the acquisition of goods, services and works but also the complete process from planning to contract management. Public procurement practice should be responsive to aspirations to the target society and there is also a need for transparency to enhance openness and clarity on procurement policy and its delivery (Amemba et al., 2013). If each public procurement functions are properly it is pivotal for the successes of any organization can reduce transaction costs up to 25 percent (Fussell et al., 2006). Even though it depends on the its approaches, Procurement performance covers a number of quality and quantity-enhancing standards, that diminishes transaction costs, shorten time spent, and the quality and quantity of goods delivered. According to (Kakwezi & Nyeko, 2010) failure to establish performance of the procurement function can lead to irregular and biased decisions that have high consequences to any public procuring entity. Thus, the focus of this study is examining the effects and relationship between procurement performance and its factors.

2.2. Approaches of Procurement and Procurement Performance

In most countries, the rapid changes of technological way of doing business, poverty reduction and development goals of countries placed pressure on how the procurement has to operate in its internal and external processes and procedures. Based on these factors countries including Ethiopia has made reforms regarding organizational procurement approaches (centralized or decentralized or hybrid), procurement process, procurement rules, and guidance, internal control policies, and workforce (Ouma & Ochiri, 2017). According to (Brezovnik et al., 2015) centralized public procurement structure important to practice in the situation where there is high degree of uniformity and consistency in all forms of organizations activities. Even though a corporate wide- framework purchase agreements were preferred in Helsinki, (Karjalainen, 2011) found that centralized procurement structure has its own drawback like prolonged procurement process, limiting the participation of local suppliers, poor procurement planning, contract management system, lack of transparency and competent procurement staffs become major impediments to the effective centralized procurement system. Moreover, centralized procurement is unfortunately an area vulnerable to mismanagement and corruption, lack of adequate needs assessment and poor business cases (Basheka, 2008). In Ethiopia, According to Council of Ministers Financial Regulation No 17/1997 and ministry of finance and economic development (2007), public procurement and property disposal has been centrally performed by public property procurement and disposal service (Tsefahun, 2011). Even though the rationale for establishment of this agency is theoretically right, practically due to rapid changes of business environment, the competency of staffs involved in procurement and approaches of procurement itself the implementation of centralized public procurement system for public organizations have been facing serious challenges. Moreover, the responsible public body, Public property Procurement and Disposal Service (PPPSA), has been pragmatic and contented its mandate is questionable due to several reasons and activities involved in procurement processes. In the contrary, decentralized public procurement system encourages responsiveness and it conducts its functions timely based on the demands of target groups or organizational divisions (Masiko, 2013).

2.3. Challenges in Procurement Processes and Procurement Performance

Procurement commonly involves purchase planning, standards determination, specifications development, supplier research and selection, value analysis, price negotiation, making the purchase, supply contract administration, inventory control and stores, and disposal functions (Mesa, 2018). According to (Emaru, 2016) established that the main challenges faced by the stakeholders in the procurement process include inadequate understanding of the roles of stakeholders in the procurement process, principles of public procurement, procurement planning and developing statements of requirements. Procurement planning and policy entails the identification of what needs to be procured, how the organizations needs can best be met, the scope of the goods, works or services required, what procurement

strategies or methods to be deployed, setting the time frames, and the accountability for the full procurement process (Thai, 2008). Procurement planning is required to consider the current procurement situation functions and the strategic direction in which its condition might change. poor procurement planning has been one of the major stumbling blocks to the economic development of Africa and it has been clear that a number of African countries have not paid adequate attention to the proper management of public resources (Onyango, 2012). Even this day, very limited scientific research has been done to examine the extent to which efforts in procurement planning can contribute to effective public organizations performance (Basheka, 2008). Control theory states that an internal control is a system built within an organization that encompasses solutions for keeping positive performances, corrective actions and to bring system stability for which it designed for (Mohammed, 2018). Unethical behavior of contracting groups and staffs involved in procurement processes stimulates fraud and theft of public funds (Ferraris et al., 2016). According to (Chan et al., 2008) the primary purpose of internal control systems is to provide reliable information about the assets, evidence-based work done on one hand and prevent assets loss and that failure to detect or prevent material error on a timely basis by the system on the other hand. According to Ethiopian procurement manual (2009), internal control system includes, activities like record management practice, actual procurement plan, procurement order tracking system, contract enforcement, proper inspection and receiving of purchased goods and services (Singh, 2020). Thorough ethical conduct is essential to the creation of long-term relationships with suppliers of goods, works and services. Since procurement staffs are the representatives of their organization, without considerations of their ethical aspects, it is impossible to claim professional ethical statuses in procurement processes. Competencies indicate sufficiency of knowledge and skills that enable to act in a wide variety of situations (Morales-Sánchez & Cabello-Medina, 2013). A study done on evaluating the purchasing procedure in Ethiopian grain trade enterprise by (Assefa, 2006) found that poor quality of grain purchases, suppliers misleading purchasers, continuous price fluctuations, unclear purchasing procedures, no technical specifications for purchasers and incompetent purchasing staff. In Kenyan Ministry of Energy; staff competency procurement planning, resource allocation, and contract management positively affected procurement performance at (Kiage, 2013). That is why this study considered procurement planning and policy as one study variable. In public organizations, procurement officials who have the obligatory procurement and supply skills are able to implement and monitor their duties in a knowledgeable, empowered and motivated manner (Khadija & Kibet, 2015). In public entity, procurement performance is not an end in itself but it is a way to control and monitor the procurement functions for more competitive, and improves delivery of quality of services. The study conducted on the determinants of Procurement performance in Kenyan ministry of education by Stephen Gitau (2013) found management style, participants, resource dependency, and technology were common determinants. In Ethiopian procurement guidelines 649/2009, commitment to continuous improvement by the supplier, level of trust placed on the suppliers, past performance of the supplier, lead times allowable and quality of goods/service suppliers provides were taken as the most serious factors to be consider while evaluating potential supplier for contract award. Supplier selection of PPDS as an agent purchaser, might face moral hazard and adverse selection that influences the output of the agent explained by failure to do exactly what the agents appointed to do (hazard (Muhunyo & Jagongo, 2018). Therefore, contract management and supplier relationship highly influence the performances of procurement at central level.

3. Methodology

3.1. Research Design

This study focuses on factors affecting centralized procurement effectiveness in higher Ethiopian public educational Institutions and to achieve this objective the researchers employed the explanatory research design.

3.2. Data Sources, Sampling and Sample Size

The study area were purposively selected and the primary data sources from 82 employees of from property procurement teams, property administration teams, accountants and cashiers of four sampled Universities and Public property procurement team leaders of PPPDSA at federal level were included in this study. The data was collected through questionnaires distributed to all responsible bodies of sampled Universities and interviews were conducted with sampled Universities procurement team leader and PPPDS procurement team leader at federal.

3.3. Method of Data Analysis

In order to achieve the designed objective of the study, Pearson correlation and a multiple regression analysis tool were used on STATA 14 software package.

3.4. Model Specification

$$Pp_{ef} = \beta_0i + \beta_1sPrpolicy + \beta_2Ictrl + \beta_3stcpcty + \beta_4mntr + \beta_5ctmgt + \beta_6ssreln + \epsilon_i$$

Table1: Description of variables

Variable	Definition
Pp _{ef}	Centralized procurement effectiveness
Prpolicy	Procurement planning and policy
Internctrl	Internal control activities
staffcpcty	Staffs educational competence
monitor	Procurement process monitoring
contmgt	Contract management
ssreln	Suppliers relationship
e	Error term
i	Ambo, Jimma, Mettu, and Wollega Universities

Source: Researchers Design, 2019

4. Results and Discussions

Hereunder a Pearson correlation analysis and a multiple regression model were used to determine the correlation between the procurement effectiveness and explanatory variables and again the influence of each explanatory variable that factors that affect the effectiveness of centralized public procurement system in Ethiopian higher public educational institutions were presented as follows;

4.1. Pearson Correlation Analysis

The correlation between the procurement effectiveness and explanatory variables were analyzed by Pearson correlation and found that all explanatory variables positively influences the effectiveness of procurement system in sampled Ethiopian higher public institutions but each variable affects procurement at different degree of correlation. For instance, procurement policy influences procurement system effectiveness at 54.15 percent degree of influence. Internal control, staff capacity and monitoring affect the procurement system effectiveness by 74.10, 49.58 and 44.57 percent respectively while contract management and supply relation with the procuring institution affects procurement system effectiveness by 3.53 and 5.68 percent degree of influence respectively.

Table 2. Correlation Analysis

	ppef	prplcy	inctrl	stcpcty	mntor	ctmgt	ssreln
ppef	1.0000						
prplcy	0.5415	1.0000					
inctrl	0.7410	0.4776	1.0000				
stcpcty	0.4958	0.4297	0.3406	1.0000			
mntor	0.4457	0.2017	0.2189	0.0340	1.0000		
ctmgt	0.0353	0.2466	0.1322	0.2779	-0.0793	1.0000	
ssreln	0.0568	-0.0987	-0.0834	0.0172	0.0974	-0.0403	1.0000

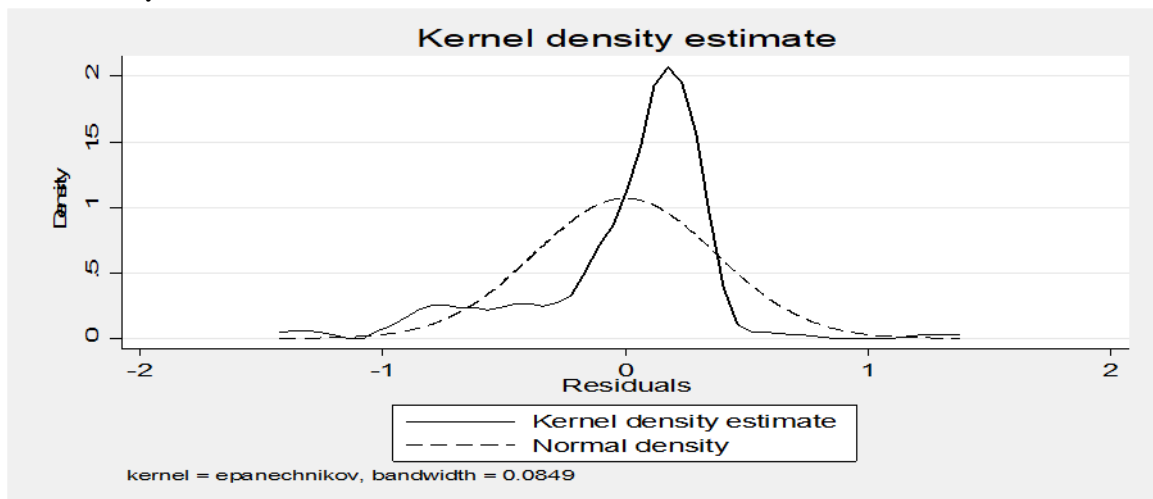
Source: Primary Data, 2019

These findings indicated that any improvement in procurement policy, internal control, staff capacity, overall monitoring and a proper implementation and enforcement of the contract management system and will contribute a lion share degree of influence to the effectiveness of the procurement practices that improves the overall procurement performance of the sampled higher public institutions.

4.2. Regression Analysis Result

Before normal regression was regressed, the researchers examined the assumption of the classical linear regression and the result of expected assumption were explained below.

4.2.1. Normality of Residuals Test



The normality estimates of kernel density figure above shown the sign of normal distribution of the data and therefore, the residual has not the issue normality problem.

4.2.2. Heteroskedasticity of Residuals test

From the table below of heteroskedasticity of residuals showed total of 0.0014 which was below significance value of 5 percent. Therefore, researchers concluded that there is no heteroskedasticity problem in this study.

Cameron & Trivedi's decomposition of IM-test

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Source |   chi2   df   p
-----+-----
Heteroskedasticity |  48.36   27  0.0070
Skewness |   14.21    6  0.0274
Kurtosis |    1.38    1  0.2403
-----+-----
Total |   63.95   34  0.0014
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4.2.3 Multicollinearity

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. vif

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Variable	VIF	1/VIF
CR	2.27	0.439663
IC	2.12	0.471949
EMA	1.50	0.664511
II	1.34	0.745185
EMP	1.19	0.838276
IS	1.19	0.842785
Mean VIF	1.60	

As it shown table above the VIF of all independent variables are greater than 0.1 and the mean VIF value of all the independent variables are also less than 10 (that is 1.60). Therefore, there is no multicollinearity problem among each independent variable.

4.2.4. Multiple Linear Regression Analysis Result

In this study, all explanatory variables were positively correlated with procurement system effectiveness. But which and how a variable is significantly influencing centralized procurement system effectiveness, needs further analysis of inferential statistics analysis. Accordingly, a multiple linear regression analysis was employed and the results were presented below.

ppef	Coef.	Std. Err.	t	P> t
prpicy	.048924	.0236978	2.06	0.042
inctrl	.2598339	.0333571	7.79	0.000
stepcty	.1396891	.0352261	3.97	0.000
mntor	.1313045	.03031	4.33	0.000
ctmgt	.0669876	.0339524	1.97	0.052
ssreln	.0457394	.0341006	1.34	0.184
_cons	.2136658	.2043437	1.05	0.299
Prob > F = 0.0001		N = 82	Adj.R-sq: 71.61	

Source: STATA outcome by researchers, 2019

4.2.4.1. Procurement Planning and Policy

A properly designed and implemented procurement policy plays a pivotal role in providing a guiding framework for the effective implementation of procurement processes and practices (Njeru et al., 2014). Procurement policies are rules and regulations for governing procurement procedures in an organization and it further involves design procurement planning of each public sectors, submit the plan to the centralized public property procurement and disposal service (PPPDS) within scheduled time, announcing a public auction and appropriately select the bidder, making contract with a bid winner, allowing lead time (if necessary), perform framework procurement and distribute to the public sectors according to their procurement plan. From this one can understand that procurement system is one of the most complicated activity in public sector operation and it further affects the budget plan and final performance of each public institution. In this study to identify to what extent procurement policy or procedure affects effectiveness of the procurement system, the researcher applied a multiple linear regression and found that public policy affects procurement system effectiveness by 0.042 percent. Therefore, each sampled higher public educational institution and PPPDSA in Ethiopia are expected to design and appropriately implement the procurement policy and procedures in a very clear manner. In addition to this, it also advisable that if they apply a computerized procurement system to support their procurement policies and reduce the degree of frauds that might arise at some point.

4.2.4.2. Internal Control Activates and Centralized Procurement System Effectiveness

Internal control system is the additional important variable incorporated in this study comprising important factors that have an influence on the effectiveness of centralized public procurement practice. According to Ethiopian procurement manual (2009), internal control system includes, activities like record management practice, actual procurement plan, procurement order tracking system, contract enforcement, proper inspection and receiving of purchased goods and services. All these segments of activities are highly correlated with competent staffs that perform them and effectiveness of the overall procurement system effectiveness of the sampled higher educational institutions. The final regression result reveals that internal control system and procedures of sampled public educational institutions in Ethiopia strongly and positively affects their effectiveness of centralized procurement system at 1 percent significance level (0.000). Therefore, to avoid the return of defect goods, high compliance on and untimely response of procurement report, misappropriates and malpractices in procurement system, the PPPDSA and sampled Ethiopian higher public educational Institutions should design strong internal control system with good evaluation system.

4.2.4.3. Staff Capacity and Centralized Procurement System Effectiveness

Staff competency is the other variable that was included in this study to analyze the factors that affects public procurement system effectiveness. In Ethiopia, public procurement system has not been yet effectively implemented since most of the procurement functions are subjected to manual procedures that are slow, inaccurate and ineffective. Competencies indicate sufficiency of knowledge and skills that enable to act in a wide variety of situations (Spencer & Spencer, 2008). In procurement perspective, if the staffs are not adequately educated, serious consequences that include breaches of codes of conduct and mal practices may occur (Shick, 2003). Thus, in public sectors, procurement officials who have the obligatory procurement and supply skills are able to implement and monitor their duties in a knowledgeable and motivated method. The regression result showed that in sampled Ethiopia higher public educational institutions and PPPDS staffs' capacity positively and significantly affects the procurement system effectiveness at 1 percent (0.000) significance level. Therefore, it is advisable if educated and well-experienced well trained staffs are has to be employed and assigned to execute procurement system of the institutions otherwise less experienced staffs are has to be regularly trained about the procurement policy of the country, procurement planning, how stakeholders participate and what procedures should be followed by each public body and how procurement report has to be made. To further reduce the burden of the staffs and improve the performance of a procurement system, it is recommendable if the manual procurement procedures are replaced computerized procurement systems. Because computerized procurement system reduces, information asymmetry, equal requirements of procurement criteria among public sectors, reduces the burden of the staffs, and it further demonstrates efficient use time and budget.

4.2.4.4. Contract Management and Centralized Procurement System Effectiveness

Contact management includes different factors corruption, unresponsive bids, ignorance of PPDS guidelines, accountability, transparency and relationship between public procurement and property disposal service agency. When public educational institutions procurement teams prepare annual procurement planning and sent to PPPDSA, according to public procurement manual, the PPPDSA and the public higher education institutions are in contract. Since 2009, to avoid corruption and misappropriations, Ethiopia has been following a centralized public procurement system for huge amount of procurement. To analyze the impact of procurement Contract management on procurement system effectiveness, the researchers applied a multiple regression and found that contract management affected procurement effectiveness of sampled Ethiopian higher public educational institutions by 5.2 percent. In another term an improvement in contract management enhances the procurement effectiveness by 6.69 percent. Therefore, a sampled budget and procurement teams of sampled Ethiopian higher public universities need to improve their contract management efficiently and effectively by combining competent staffs on procurement planning, and budget teams of their respective universities.

4.2.4.5. Monitoring and Centralized Procurement System Effectiveness

Monitoring is the process of continuously evaluating the internal control system and improves or modifies the necessary procedures when it is needed. Monitoring covers assessing all components of procurement policies & procedures, procurement contract management, internal control system of the institution under operation, and finally identify the loopholes and recommend the management to take correction actions based on its evaluation findings. Accordingly, the overall annual procurement system effectiveness was boosted and contributes to organizational performance. In this study, monitoring is included as one factor and the statistical analysis result displayed that monitoring affected the procurement system effectiveness at 1 percent significance level (0.000). Therefore, the sampled Ethiopian higher public education institutions ought to have a separate procurement system monitoring team and independent verifiers of the procurement performance based on the annual procurement plan.

5. Conclusion and Recommendation

The Pearson correlation analysis between procurement effectiveness of a sampled Ethiopian higher public educational institutions and explanatory variables were done and the result showed procurement policy (54.15%), Internal control (74.10%), staff capacity (49.58%) monitoring (44.57%) contract management (3.53%) and supply relation (5.68%) were the main factors that affect the procurement effectiveness. These indicates all explanatory variables were positively influencing the effectiveness of procurement system but each variable affects procurement at different degree of correlation. The multiple linear regression analysis result exhibited that public policy affected procurement system effectiveness of the sampled Ethiopian higher public educational institution by 0.042 percent. Therefore, each sampled higher public educational institution and PPPDSA in Ethiopia are expected to design and appropriately implement the procurement policy and procedures in a very clear manner. Internal control system and procedures of sampled public educational institutions in Ethiopia strongly and positively affects their effectiveness of procurement system at 1 percent significance level (0.000). Therefore, to avoid the return of defect goods, malpractices, high compliance and untimely response of procurement orders, the PPPDS and sampled Ethiopian higher public educational Institutions should design very clear procurement planning criteria that fits the national procurement guideline, strong internal control system with good evaluation system.

Monitoring affected the procurement system effectiveness at 1 percent significance level (0.000). Therefore, the sampled Ethiopian higher public education institutions ought to have a separate procurement system monitoring team and independent verifiers of the procurement performance based on the annual procurement plan. An improvement in contract management enhances the procurement effectiveness by 6.69 percent and it was also affected procurement effectiveness of sampled Ethiopian higher public educational institutions by 5.2 percent. Therefore, a sampled budget and procurement teams of sampled Ethiopian higher public universities need to improve their contract management efficiently and effectively by combining competent staffs, procurement planning, and budget teams with procurement teams of PPPDSA at central level. Moreover, it also advisable that if the sampled Ethiopian higher public educational institutions apply a computerized procurement system to support their procurement policies and reduce the degree of frauds that might arise at some point of procurement processes.

Declarations

This research titled 'Factors affecting effectiveness of centralized public procurement system: Evidence from selected Ethiopian higher public education Institutions' is our original work conducted by two authors for further improvement of public institutions' financial management and enhancing accountability and efficiency especially around public procurement. In addition, there is conflict interest that might rise either from other individual, or institution and if it happens, we, the authors, are responsible or any measures or actions to be taken on us due to this paper.

References

- Ambe, I. M., & Badenhorst-Weiss, J. A. (2012). Procurement challenges in the South African public sector. *Journal of Transport and Supply Chain Management*, 6(1), 242–261.
- Amemba, C. S., Nyaboke, P. G., Osoro, A., & Mburu, N. (2013). Challenges affecting public procurement performance process in Kenya. *International Journal of Research in Management*, 3(4), 41–55.
- Assefa, B. (2006). Evaluating the purchasing procedure in Ethiopian grain trade Enterprise. AAUCC.
- Bahl, R., & Bird, R. M. (2018). *Fiscal decentralization and local finance in developing countries*. Edward Elgar Publishing.
- Barasa, H. W. (2014). Procurement practices affecting effective public projects implementation in Kenya: a case study of Kenya Civil Aviation Authority. *European Journal of Business and Management*, 6(6), 49–67.
- Basheka, B. C. (2008). Procurement planning and accountability of local Government procurement systems in developing countries: Evidence from Uganda. *Journal of Public Procurement*.
- Brezovnik, B., Oplotnik, Ž. J., & Vojinović, B. (2015). (De) centralization of public procurement at the local level in the EU. *Transylvanian Review of Administrative Sciences*, 11(46), 37–52.
- BULCHA, T. (2018). COLLEGE OF FINANCE, MANAGEMENT AND DEVELOPMENT DEPARTMENT OF PUBLICPROCUREMENT AND ASSET MANAGEMENT MASTER'S.
- Chan, K. C., Farrell, B., & Lee, P. (2008). Earnings management of firms reporting material internal control weaknesses under Section 404 of the Sarbanes-Oxley Act. *Auditing: A Journal of Practice & Theory*, 27(2), 161–179.
- Chekol, G. A., & Tehulu, T. A. (2014). Public procurement reform in Ethiopia: Factors leading to effective public procurement implementation: The case of Amhara Region. *European Journal of Business and Management*, 6(23), 153–158.
- DAMTE, B. (2018). PROCUREMENT PRACTICES AND CHALLENGES IN ETHIOPIA: EVIDENCE FROM THE ETHIOPIAN AGRICULTURAL TRANSFORMATION AGENCY. st. mary's University.
- EMARU, J. (2016). FACTORS AFFECTING PERFORMANCE OF THE PROCUREMENT AND DISPOSAL UNIT (PDU) IN THE UGANDA NATIONAL AGRICULTURAL RESEARCH ORGANISATION (NARO).
- Ferraris, V., Mazza, C., & Scomparin, L. (2016). Warning on Crime. Preventing and Combatting Crime in Public Procurement.
- Fussell, H., Harrison-Rexrode, J., Kennan, W. R., & Hazleton, V. (2006). The relationship between social capital, transaction costs, and organizational outcomes. *Corporate Communications: An International Journal*.
- Hartmann, E., Kerkfeld, D., & Henke, M. (2012). Top and bottom line relevance of purchasing and supply management. *Journal of Purchasing and Supply Management*, 18(1), 22–34.
- Huidensalo, A. (2016). A framework for improving cost-effectiveness of product designs by cross-functional and inter-organizational collaboration.
- Kakwezi, P., & Nyeko, S. (2010). Procurement processes and performance: Efficiency and effectiveness of the procurement function. Retrieved April, 3(2011), 1–22.
- Karjalainen, K. (2011). Estimating the cost effects of purchasing centralization—Empirical evidence from framework agreements in the public sector. *Journal of Purchasing and Supply Management*, 17(2), 87–97.
- Khadija, R., & Kibet, Y. (2015). Factors affecting implementation of public procurement procedures and practices in Elgeyo-Marakwet county. *International Academic Journal of Procurement and Supply Chain Management*, 1(5), 121–135.

- Kiage, J. O. (2013). Factors affecting procurement performance: A case of ministry of energy. *International Journal of Business and Commerce*, 3(1), 54–70.
- Mahmood, S. A. I. (2013). Public procurement system and e-Government implementation in Bangladesh: The role of public administration. *Journal of Public Administration and Policy Research*, 5(5), 117–123.
- Masiko, D. M. (2013). Strategic procurement practices and procurement performance among commercial banks in Kenya. University of Nairobi.
- Mesa, R. N. (2018). Determinants of procurement performance in judiciary department at the Nakuru Law Courts, Kenya. JKUAT.
- Mohammed, A. (2018). Effect of internal control on revenue collection in Kintampo Municipal Assembly. University of Cape Coast.
- Morales-Sánchez, R., & Cabello-Medina, C. (2013). The role of four universal moral competencies in ethical decision-making. *Journal of Business Ethics*, 116(4), 717–734.
- Mugambi, B. M. (2019). Effects of information communication technology adoption on financial management in Meru County government. KeMU.
- Muhunyo, B. M., & Jagongo, A. O. (2018). Effect of internal control systems on financial performance of public institutions of higher learning in Nairobi City County, Kenya. Doctoral dissertation, Kenyatta University.
- Munyao, K. V., & Moronge, M. (2017). Effect of public procurement framework on disposal of obsolete stock in the public sector in Kenya: A Case of the Judiciary of Kenya. *The Strategic Journal of Business and Change Management*, 2(37), 660–675.
- Ndercaj, V., & Ringwald, K. (2014). An Investigation into the common challenges facing public sector procurement in sub-Saharan Africa. 6th Public Procurement Research Student Conference, 28–29.
- Njeru, S. E., Ngugi, P., Arasa, R., & Kahiri, J. (2014). Procurement Policies and Implementation Of Effective Procurement Practices In Tertiary Public Training Institutions In Kenya.
- Onyango, C. J. (2012). Effects of procurement planning on institutional performance: A case study of Mombasa Law Court. *International Journal of Science and Research (IJSR)*, 3(11), 446–455.
- OUMA, J. M., & OCHIRI, G. (2017). Drivers of Implementation of Procurement Outsourcing Practices in State Corporations in Kenya: A Case of National Hospital Insurance Fund.
- Schultz, J., & Søreide, T. (2008). Corruption in emergency procurement. *Disasters*, 32(4), 516–536.
- Singh, A. (2020). Transparency, Accountability and Efficiency in Public Procurement Practices (The case of Public Higher Educational Institutions in Ethiopia). *Studies in Indian Place Names*, 40(3), 2965–2985.
- Spencer, L. M., & Spencer, P. S. M. (2008). *Competence at Work models for superior performance*. John Wiley & Sons.
- Tesfahun, Y. (2011). *Public Procurement Reforms in Ethiopia: Policy and Institutional Challenges and Prospects* by Yirga Tesfahun. Addis Ababa University.
- Thai, K. V. (2008). *International handbook of public procurement*. CRC Press.
- Thai, K. V. (2017). International public procurement: Concepts and practices. In *International handbook of public procurement* (pp. 33–56). Routledge.
- Tolessa, K. (2016). Assessing the Significance and Efficiency of Framework Agreement: In Case of Ethiopian Federal Public Organisation. *Journal of Supply Chain Management Systems*, 5(4), 1.
- Yukins, C. R., & Schnitzer, J. S. (2015). GPA Accession: Lessons Learned on the Strengths and Weaknesses of the WTO Government Procurement Agreement. *Trade L. & Dev.*, 7, 89.