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MODERATING EFFECT OF REGULATORY FRAMEWORK IN THE RELATIONSHIP BETWEEN INTERNATIONAL PROCUREMENT PRACTICES AND SUPPLY CHAIN PERFORMANCE OF ENERGY DEVELOPMENT AGENCIES IN KENYA

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ABSTRACT

Background of the Study: The regulatory framework comprises of laws and regulations that regulate both public and private sector procurement practitioners and strives to professionalize procurement practice. In many countries today, public procurement has become an issue of public attention and debate, and has been subjected to reforms, restructuring, laws and regulations.

Objective of the Study: This study sought to establish the moderating effect of regulatory framework in the relationship between international procurement practices and supply chain performance of energy development agencies in Kenya.

Methodology: Positivistic philosophy approach was adopted for the study. The study adopted a cross-sectional survey research design with an aim of collecting large number of quantitative data at a point in time so as to establish patterns of value addition in the Kenyan energy sector. The study's target population consisted of six energy development agencies in Kenya as outlined by the Ministry of energy (2018). The unit of analysis was the energy development agencies. The study purposely sampled only the top managers and middle managers since they are the key individuals handling the strategic issues within the departments. The study used primary data obtained using self-administered questionnaires. Quantitative data was analyzed using Statistical Package for Social Sciences (SPSS).

Findings: Since the P value of the interaction term (IPP*RF) is 0.000< 0.05 and the R^2 increased from 55% to 60% and 70% after the interaction term and thus, we conclude that regulatory framework moderates the relationship between international procurement practices and supply chain performance of energy development agencies in Kenya. The study thus rejected the null

hypothesis and adopted the alternative hypothesis that there is a significant moderating effect of regulatory framework in the relationship between international procurement practices and supply chain performance of energy development agencies in Kenya.

Conclusions and Recommendations: The study concluded that there was a significant moderating effect of regulatory framework in the relationship between international procurement practices and supply chain performance of energy development agencies in Kenya. In addition from the responses, the study found that the agencies has open contracting requirements between procurement personnel and suppliers community. The agencies has clearly expressed and readily available policies, procedures and regulations from the energy sector and the tax regime in Kenya is favorable for international public procurement by the agency.

Keywords: *Regulatory Framework, International Procurement Practices, Supply Chain Performance, Energy Development Agencies & Kenya.*

1.0 INTRODUCTION

1.1 BACKGROUND OF THE STUDY

According to Awino and Marendi-Getuno (2014), a legal framework encompasses the laws, regulations and policies that are put in place to govern an organization or an activity and clearly covers the whole scope of procurement, all stages of the procurement process, methods of procurement, ethics and transparency. Schapper, Veiga and Gilbert (2016) define regulatory framework as any laws, regulations, decrees and policies officially developed and approved by the government, for the purposes of regulating. Naude *et. al*. (2013) observe that internationally procurement is a regulated, open process defined and controlled by numerous laws, rules and regulations that vary from country to country including but not limited to, tax regimes, procurement guidelines and contracting requirements.

Andrew (2010) indicates that the regulatory framework comprises of laws and regulations that regulate both public and private sector procurement practitioners and strives to professionalize procurement practice. It is expected that such framework should improve the procurement approach and procedure such that it is relevant, transparent, competitive and appropriate (Wachiuri, Waiganjo, Ismail & Odhiambo, 2017). In this study, energy development agencies are expected to operate in a dynamic regulatory framework that incorporates international laws, regulations and tax regimes of different countries participating in international procurement, as well as domestic procurement laws, guidelines and regulations. For instance, Public Procurement and Disposal Act, 2010, Public Procurement and Disposal Regulations 2015, Public Procurement and Disposal Regulations (Public Private Partnerships) 2011, Supplies Practitioners Management Act 2007 and National case-law.

In many countries today, public procurement has become an issue of public attention and debate, and has been subjected to reforms, restructuring, laws and regulations (Migosi, Ombuk, & Evusa 2013). Public procurement refers to the acquisition of goods, services and works by a procuring entity using public funds (Graells, 2015). Public bodies have the characteristic of dealing with huge budgets; public procurement represents 18.42% of the world GDP (Mahmood, 2017). Public procurement law regulates the purchasing by public sector bodies and certain utility sector bodies of contracts for goods, works or services (Brammer & Walker, 2017). Most countries have public procurement laws that set out the rules and processes to be followed for all forms of public

procurement (Bovis, 2015). Often these laws apply more generally to procurement of PPPs, unless there is a specific PPP law or concession law which provides otherwise. Civil law countries may also have a separate procurement mechanism for delegated management contracts.

Supply Chain Performance refers to the extended supply chain's activities in meeting end-customer requirements, including product availability, on-time delivery, and all the necessary inventory and capacity in the supply chain to deliver that performance in a responsive manner (Lusch, 2011). Supply chain performance crosses company boundaries since it includes basic materials, components, subassemblies and finished products, and distribution through various channels to the end customer. There are 5 essential stages in developing a successful supply chain (Awino & Marendi, 2014). These include Plan stage: The Company must decide whether to manufacture a product or buy it. The second stage is source: The Company should select the source and once selected, contracts and schedule deliveries must be negotiated. Stage three is make: This is concerned with scheduling of production activities, testing of products and packaging. At this stage companies must also manage rules for performance, data that must be stored, facilities and regulatory compliance (Awino & Marendi, 2014). The forth step is delivery: The delivery stage encompasses all the steps from processing customer inquiries to selecting distribution strategies and transportation options. Companies must also manage warehousing and inventory or pay for a service provider to manage these tasks for them. The fifth and the final step is return: Return is associated with managing all returns of defective products, including identifying the product condition, authorizing returns, scheduling product shipments, replacing defective products and providing refunds (Caritas, Kule & Mbera, 2016).

Energy is one of the key enablers of the Vision 2030 and energy security remains a matter of national priority (MoEP, 2017). Under the fourth Schedule of the Constitution of Kenya 2010, the Ministry of Energy, on behalf of the National Government, is responsible for energy policy and regulation of electricity while County Governments are responsible for planning and development of electricity and regulation. The Energy Act of 2006 brought the regulations affecting all the energy sub-sectors under one umbrella body, which is the Energy Regulatory Commission (ERC). These energy agencies includes; Kenya Electricity Generating Company (KenGen), Kenya Power and Lighting Company (KPLC), Kenya Electricity Transmission Company (KETRACO), Geothermal Development Company Limited (GDC), Rural Electrification and Renewable Energy Corporation (REREC) and Nuclear Power and Energy Agency (NUPEA).

1.2 STATEMENT OF THE PROBLEM

As Kenya races towards an energy-sufficient future, there has been inefficiencies such shortage of transformers and overstressed distribution network, long delays in development of power infrastructure because building of power generation, transmission and distribution network is capital intensive and takes inordinately long time from conception to commissioning (MEA, 2019). KenTrade (2016) reported that the performance of Kenya energy sector in terms of supply chain performance in the recent past has been below expectation and this has raised anxiety among the stakeholders. Moreover, Kenya has regularly experienced frequent breaks in the supply of energy products over the years despite the state spending about Kshs. 234 billion per year in the energy sector. As a result, energy development agencies have registered a high number of complaints relating to blackouts, poor supply and delayed responses to emergency cases as well as repairs (KenTrade, 2016).

Various scholars have also undertaken studies relating to procurement practices and supply chain performance and they found mixed findings. Majority of the studies found a positive significant relationship (Okulo, 2015; Sengbeh, 2015; Caritas *et al.* 2016; Mrope, Namusonge & Iravo, 2017; Wei, Govindan, Li & Zhao, 2015 and Chen and Paulraj, 2014). Other studies find an insignificant relationship (Chokshi *et al*., 2015; Awino & Marendi-Getuno, 2014 and Anderson, 2011)

However, from the inconclusive findings the relationship between international procurement practices and supply chain performance of energy development agencies in Kenya is therefore open to further enquiry as to whether other variables affect this relationship. This study therefore sought to investigate establish the moderating effect of regulatory framework in the relationship between international procurement practices and supply chain performance of energy development agencies in Kenya.

1.3 OBJECTIVE OF THE STUDY

To establish the moderating effect of regulatory framework in the relationship between international procurement practices and supply chain performance of energy development agencies in Kenya.

1.4 HYPOTHESES OF THE STUDY

Ho: There is no significant moderating effect of regulatory framework in the relationship between international procurement practices and supply chain performance of energy development agencies in Kenya.

2.0 LITERATURE REVIEW

2.1 Theoretical Framework

2.1.1 Contract Theory

Contract theory was put forward by Arrow (1960). As it is applied in economics, the contract theory observes how economic actors are capable of and develop contractual arrangements with the asymmetrical information. Due to its relationship with both agency and motivators, it's often classified in the area of economics and law. One known area of its application is the design of maximal schemes of management and compensation (Kitsao, 2017).

A known practice in the microeconomics of the theory is its application in the representation of a decision maker in the light of numerical utility components and then apply maximization algorithm to find the maximal decisions. As per the application of contract theory, the major achievements include; relaxation of assumptions, principal and agent mathematical structure and time structure variations of the contract associations among many others (Lysons, 2010). This theory has been critiqued in that it does not provide solution to incomplete contracts.

The important but common assumption in the theory lies on the concept that the incentive contract is applicable under low costs and that the contactor is liable for any contracted work basically through the court. Nevertheless, this is not always the case. The substandard service delivered by the Iraq contractors according to Krugman (2013) has resulted to prosecution of many. In the contract theory, there are two critical issues which are accountability and enforceability. In such adverse situations, institutions can't afford to engage in contacts that will fail or lead to major failures among the associated parties. Therefore, based on this theory, contractors have to include risk premiums as they are accountable of every action. Secondly, this is a suitable solution to a

reasonable intensity of risk. However, Wenz (2011) argues that, in the light of such contract risk premium, if the risk is bigger, a compatible risk premium might be unavailable to cover the risk.

The theory is relevant in the Kenyan energy sector as the sector handles numerous informed clients that demand quality service provision as energy is a primary need both for domestic and commercial purposes. Therefore, it is important to all the energy agencies in the sector abide by the set terms and conditions of the international procurement and supply chain contracts. Any changes as to affect the contract terms have to be communicated in time to obviate any loss due to customer frustration or legal suit. This theory informs regulatory framework variable.

2.2 Empirical Review

Sementelli (2010) looked into legal factors influencing public procurement in India by adopting factor analysis and reported that client related factors and legal auditor's professional requirements had the greatest influence on public procurement practices. The study further indicated that regulatory framework for procurement management needed to be prepared by policy makers, more public auditors needed to be trained on public procurement audit and managers be open to procurement audit as a positive management tool. Findings also indicated that prudent management of public procurement systems has been identified as very important to accelerated national development. Government policy tends to rely heavily on the professions of law, economics and operations management, particularly at the micro level. Government policy is a route to sales for the private sector to some of the biggest clients in the world, and has an impact on domestic economies and international trade. From this point of view public procurement is clearly a major economic driver and can be used to influence critical economic conditions (Sementelli, 2010).

Ogot, Mulinge, and Muriuki (2010) studied the impact of the public procurement law and regulations on 54 profit oriented public corporations in Kenya. The study adopted a cross-sectional survey research design. The study findings established that regulating procurement in profit oriented public corporations had significantly promoted transparency, quality and value for money in procurement carried out. Similarly, Narikan (2011) indicated that social value orientation, expected utility, legitimacy of the procurement law enforcement agency and perceptions of procedural justice were significant predictors of the public procurement regulatory compliance.

Downs and Jones (2012) analyzed the reputation, compliance and international law. They noted that there has been an increasing push for efficiency and effectiveness in the compliance to laws and treaties at a local, regional and international level. They argued that the lack of compliance to laws has an effect on the reputation of the country and consequently the Interaction with international actors of the country. They cite that in case of trade treaties, where countries fail to comply with the requirements of the treaties, other countries will be cautious in dealing with the nation or its citizens due to concerns on reputation and execution of contracts. In addition, Downs and Jones (2012) noted that the lack of compliance has compliance costs and benefits and thus countries must endeavor to comply to laws they have enacted with the aim of reducing the compliance costs.

Interactions with international actors enhance compliance to laws and regulations. According to Guzman (2012) in the paper A Compliance Based Theory of International Law, a compliance norm under a managerial model to international law compliance is driven by the fear of sanctions by a country. Chayes and Chayes (2017) developed the managerial model to international law compliance and noted that the enforcement or compliance to laws is a consequence of threat of

sanctions or coercion of the individual states to implement the laws. Sactions may be in the form of punishments or charges to the country. This is also clearly brought out in the study by Sutinen and Kuperan (2016) and Rice (2017) all of whom noted that compliance to laws is a consequence of fear of consequences and reprisal from the international community and other actors.

Koh (2016) provided an alternative perspective to compliance to international and domestic laws. According to Koh, Interaction with international actors are at the core of compliance to international and domestic laws in a number of ways. This includes: the interaction of the institutional stakeholders in the interpretation, enforcement and internalization of the concepts and rules of international laws. According to Koh, domestic countries often seek to comply with international laws as a result of knowledge, familiarity and involvement in the preparation, enactment, and enforcement of the international law.

The World Bank (2016) postulates that prudent management of public procurement systems has been identified a very important to accelerated national development. For this reason, successive governments have realized that reformation in the procurement laws is a justification for judicious use of the taxpayer's money. Thus, procurement regimes are strongly regulated and implemented to ensure attainment of value for money through transparency, fairness, cost -effectiveness, efficiency and promotion of competitive local industry. Major or complex contracts that were financed by the government through architectural consultancy services and project supervision were assigned to the Architectural and Engineering Services Limited (AESL) on single basis without recourse to fair. These uncoordinated and unregulated systems of procurement were the consequences of poor procurement situation leading to the much acclaimed reform of public procurement practices to instill trust and confidence in the public and the donor community.

Murray (2018) highlights why political procurement is important; he explains that the public sector works within a narrow framework of democratic governance strategy and management, where local people exercise their right to determine how and by whom they should be governed through the ballot box. He continues further to explain that, in turn, those who are elected not only have a representative advocacy role but are democratically accountable to their electorate for their decisions.

2.3 Conceptual Framework

The study's conceptual framework is conceptualized the moderating effect of regulatory framework in the relationship between international procurement practices and supply chain performance of energy development agencies in Kenya. The study's conceptual framework is illustrated in Figure 1.

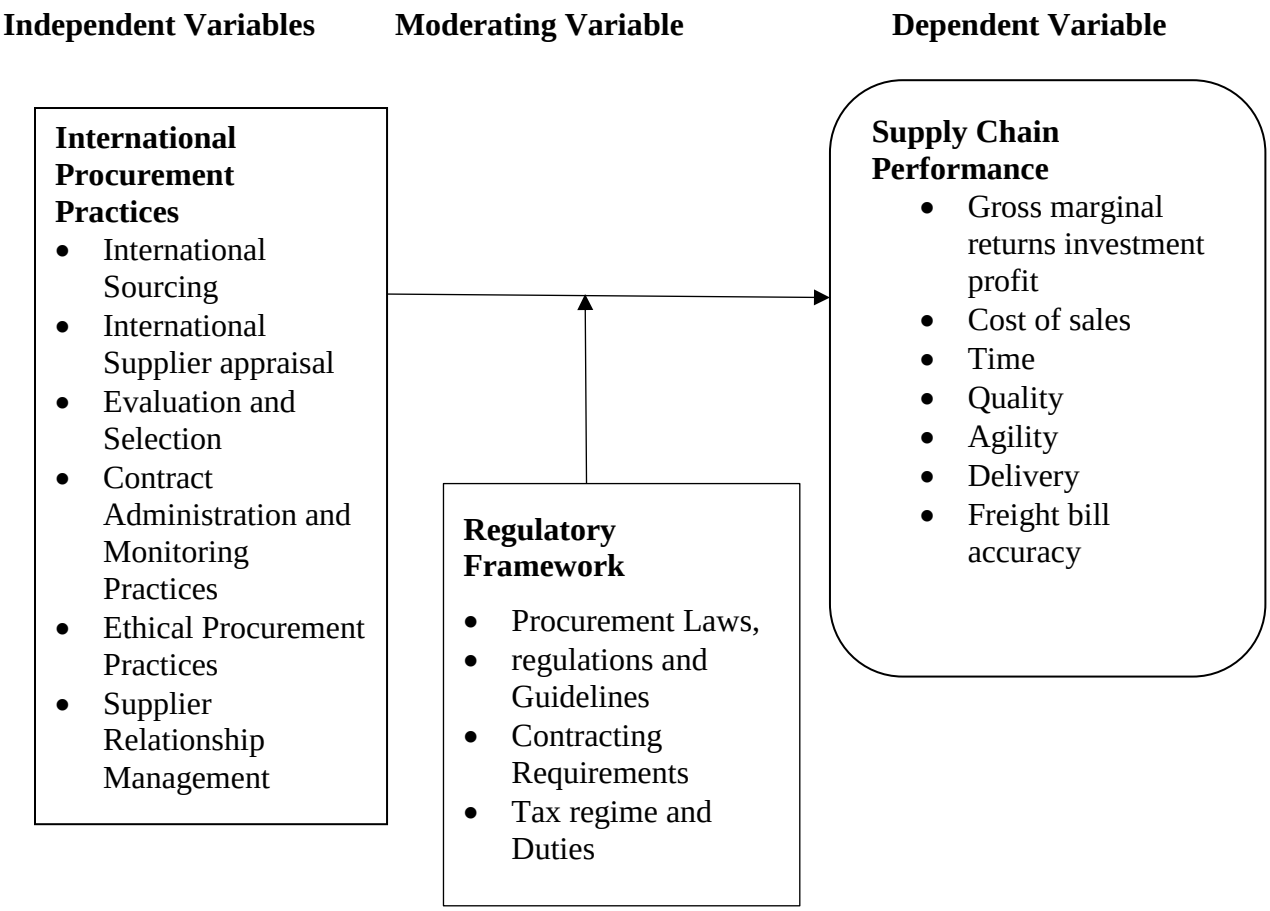

Figure 1: Conceptual Framework

3.0 RESEARCH METHODOLOGY

Positivistic philosophy approach was adopted for the study. The study adopted a cross-sectional survey research design with an aim of collecting large number of quantitative data at a point in time so as to establish patterns of value addition in the Kenyan energy sector. The study's target population consisted of six energy development agencies in Kenya as outlined by the Ministry of energy (2018). These agencies include: Rural Electrification and Renewable Energy Corporation (REREC), Geothermal Development Company (GDC), Kenya Electricity Transmission Company (KETRACO), Kenya Generation Company (KENGEN), Kenya Power and Lighting Company (KPLC) and Nuclear Power and Energy Agency (NUPEA). The justification for picking the 6 agencies is because they are energy sub-sectors under one umbrella body, which is the Energy Regulatory Commission (ERC). The unit of analysis was the energy development agencies. The study purposely sampled only the top managers and middle managers since they are the key individuals handling the strategic issues within the departments. The study used primary data. Primary data was obtained using self-administered questionnaires. Quantitative data was analyzed using Statistical Package for Social Sciences (SPSS).

The moderating model checks the "prediction of a dependent variable, SCP, from an independent variable differs across levels of a third variable, RF" (Baron and Kenny, 1986). Moderating variable affects the strength and direction of the relationship between predictors and an outcome thus increasing, reducing, or affecting the influence of the predictor variable. Moderation depicts the interaction between variables, thus the test involves determination of the statistical significance of the interaction term (Whisman & McClellard, 2005). The model for the study was:

Step 1: $SCP = \beta_0 + \beta_1 IPP + \varepsilon$

Step 2 : $SCP = \beta_0 + \beta_1 IPP + \beta_2 RF + \varepsilon$

Where:

SCP= Supply Chain Performance

IPP = Composite of international sourcing, international supplier evaluation and selection, contract administration and monitoring practices and ethical procurement practices

RF = Regulatory Framework

β_0 = Constant

$\beta_{1...}\beta_2$= Beta coefficients

ε = Error term

Finally, model 8 was used to estimate and give the direction and effect of the moderator on the independent variable and the total effect (of the moderator) on the dependent variable by interacting the moderating variable and the predictor variable.

Step 3: $SCP = \beta_0 + \beta_1 IPP + \beta_2 RF + \beta_3 IPP * RF + \varepsilon$

SCP = Supply Chain Performance

IPP = Composite of international sourcing, international supplier evaluation and selection, contract administration and monitoring practices and ethical procurement practices

IPP*RF= International Procurement Practices x Regulatory Framework

RF =Regulatory Framework

β_0 = Constant

$\beta_{1...}\beta_2$ = Beta coefficients

ε =Error term

4.0 RESULTS AND FINDINGS

4.0 Results and Findings

4.1 Descriptive Statistics

4.1.1 Descriptive Statistics for International Procurement Practices

The objective of the study was to establish the relationship between international procurement practices and supply chain performance. The mean showed the average values, the mode showed the most common value and the median indicated the middle number in set numbers. The results are as depicted in Table 1.

Table 1: Descriptive Statistics for International Procurement Practices

Measure	International Sourcing	International Supplier Evaluation & Selection	Contract Administration and Monitoring Practices	Ethical Procurement Practices	Supplier Relationship Management
N	132	132	132	132	132
Mean	3.081	3.117	3.154	3.067	3.0706
Median	3.200	3.100	3.150	3.150	3.555
Mode	2.100	3.000	3.000	3.000	3.660
Std. Deviation	1.100	1.195	1.145	1.157	0.810
Skewness	-0.200	-0.043	-0.228	-0.251	-0.473
Std. Error of Skewness	0.211	0.211	0.211	0.211	0.211
Kurtosis	-0.898	-1.214	-0.930	-1.143	-1.414
Std. Error of Kurtosis	0.419	0.419	0.419	0.419	0.419

The results from the Table 1 shows the descriptive statistics that indicates central tendency and dispersion of all the measures of international procurement practices. The total number of respondents in each measured was 132. Distribution of data was measured using skewness and kurtosis whereas central tenancy was measured using mean, median and mode. The standard deviation was used to measure dispersion. The results show that international sourcing had a mean of 3.081, median of 3.200 and mode of 2.100. This implied that the mean of 3.081 implied that majority were agreeing with the statement. The standard deviation of 1.100 showed that the members of the group differed from the mean value of 3.081 for the group in the observation.

The measures of kurtosis and skewness are used to determine if indicators met normality assumptions (Kline, 2005). According to Bai and Ng (2005), if skewness is less than -1 or greater than 1, the distribution is highly skewed, if skewness is between -1 and -0.5 or between 0.5 and 1, the distribution is moderately skewed, if skewness is between -0.5 and 0.5, the distribution is approximately symmetric. Skewness for international sourcing was -0.200. Since the values were between -0.5 and 0.5, we thus conclude that the distribution is approximately symmetric. Kurtosis results showed that leadership style had -0.898. Thus, we can conclude that the values were platykurtic since they are less than 3 and thus had a broad tail distribution and no outliers.

The results show that international supplier evaluation and selection had a mean of 3.117, median of 3.100 and mode of 3.000. This implied that the mean of 3.117 implied that majority were agreeing with the statement. The standard deviation of 1.195 showed that the members of the group differed from the mean value of 3.117 for the group in the observation. Skewness for international supplier evaluation and selection was -0.043. Since the values were between -0.5 and 0.5, we thus conclude that the distribution is approximately symmetric. Kurtosis results showed that

international supplier evaluation and selection had -1.214. Thus, we can conclude that the values were platykurtic since they are less than 3 and thus had a broad tail distribution and no outliers.

The results showed that contract administration and monitoring practices had a mean of 3.154, median of 3.150 and mode of 3.000. This implied that the mean of 3.154 implied that majority were agreeing with the statement. The standard deviation of 1.145 showed that the members of the group differed from the mean value of 3.154 for the group in the observation. Skewness for contract administration and monitoring practices was -0.228. Since the values were between -0.5 and 0.5, we thus conclude that the distribution is approximately symmetric. Kurtosis results showed that contract administration and monitoring practices had -0.930. Thus, we can conclude that the values were platykurtic since they are less than 3 and thus had a broad tail distribution and no outliers.

The results showed that ethical procurement practices had a mean of 3.067, median of 3.150 and mode of 3.000. This implied that the mean of 3.067 implied that majority were agreeing with the statement. The standard deviation of 1.157 showed that the members of the group differed from the mean value of 3.154 for the group in the observation. Skewness for contract administration and monitoring practices was -0.251. Since the values were between -0.5 and 0.5, we thus conclude that the distribution is approximately symmetric. Kurtosis results showed that contract administration and monitoring practices had -1.143. Thus, we can conclude that the values were platykurtic since they are less than 3 and thus had a broad tail distribution and no outliers.

4.1.2 Descriptive Statistics for Planning Function of Management

Descriptive statistics were carried out on regulatory framework and the results are shown in Table 2.

Table 2: Descriptive Statistics for Regulatory Framework

Measure	Regulatory Framework
N	132
Mean	2.893
Median	3.150
Mode	2.000
Std. Deviation	1.301
Skewness	-0.001
Std. Error of Skewness	0.211
Kurtosis	-1.522
Std. Error of Kurtosis	0.419

The results from the Table 2 shows the descriptive statistics for regulatory framework. The total number of respondents in each measured was 132. Distribution of data was measured using skewness and kurtosis whereas central tenancy was measured using mean, median and mode. The standard deviation was used to measure dispersion. The results show that regulatory framework had a mean of 2.893, median of 3.150 and mode of 2.000. The standard deviation of 1.301 showed that the members of the group differed from the mean value of 2.893 for the group in the observation. The standard deviation of 1.301 further implies that the data points tend to be very

close to the mean of the data and a high standard deviation implies that the data points are spread over a wide range of the values.

Skewness for regulatory framework was -0.001. Since the values were between -0.5 and 0.5, we thus conclude that the distribution is approximately symmetric. Kurtosis results showed that regulatory framework had -1.522. Thus, we can conclude that the values were platykurtic since they are less than 3 and thus had a broad tail distribution and no outliers. Regulatory framework was evenly distributed and the measure between the high and low score was small and exhibits normality in regulatory framework.

4.1.3 Descriptive Statistics for Supply Chain Performance

Descriptive statistics were carried out on supply chain performance and the results are shown in Table 3.

Table 3: Descriptive Statistics for Supply Chain Performance

Measure	Supply Chain Performance
N	132
Mean	3.470
Median	3.500
Mode	3.500
Std. Deviation	0.402
Skewness	0.177
Std. Error of Skewness	0.211
Kurtosis	-0.169
Std. Error of Kurtosis	0.419

The results from the Table 3 shows the descriptive statistics for supply chain performance. The total number of respondents in each measured was 132. Distribution of data was measured using skewness and kurtosis whereas central tenancy was measured using mean, median and mode. The standard deviation was used to measure dispersion. The results show that supply chain performance had a mean of 3.470, median of 3.500 and mode of 3.500. The standard deviation of 0.402 showed that the members of the group differed from the mean value of 3.470 for the group in the observation. The standard deviation of 0.402 further implies that the data points tend to be very close to the mean of the data and a high standard deviation implies that the data points are spread over a wide range of the values.

Skewness for supply chain performance was 0.177. Since the values were between -0.5 and 0.5, we thus conclude that the distribution is approximately symmetric. Kurtosis results showed that supply chain performance had -0.169. Thus, we can conclude that the values were platykurtic since they are less than 3 and thus had a broad tail distribution and no outliers. Sustainability was evenly distributed and the measure between the high and low score was small and exhibits normal supply chain performance.

4.2 Correlation Analysis

Table 4 below presents the results of the correlation analysis.

Table 4: Correlation Matrix

Variables		Supply Chain Performance	International Procurement Practices	Regulatory Framework
Supply Chain Performance	Pearson Correlation	1.000		
	Sig. (2-tailed)			
International Procurement Practices	Pearson Correlation	.739**	1.000	
	Sig. (2-tailed)	0.000		
	Sig. (2-tailed)	0.000	0.000	
Regulatory Framework	Pearson Correlation	.754**	.550**	1.000
	Sig. (2-tailed)	0.000	0.000	

The results in Table 4 indicated that international procurement practices was positively and significantly associated to supply chain performance (r= 0.739, p=0.00<0.05). Regulatory framework was positively and significantly associated to supply chain performance (r=0.754, p=0.00<0.05). This was an indication that international procurement practices and regulatory framework portrayed a strong connection with and supply chain performance.

4.3 Hypothesis Testing

The objective was to establish the moderating effect of regulatory framework in the relationship between international procurement practices and supply chain performance of energy development agencies in Kenya. The third hypothesis stated in the null form is as follows:

Ho_3: There is no significant moderating effect of regulatory framework in the relationship between international procurement practices and supply chain performance of energy development agencies in Kenya.

The moderating effect of regulatory framework was assessed and results explained using coefficient of determination (R-Square), Analysis of Variance (ANOVA) and the regression coefficients. Hierarchical regression analysis was performed with an interaction term (a product of international procurement practices and regulatory framework) introduced as an additional predictor. The moderating effect was analyzed in 3 models as guided by the following models:

$SCP=\beta_0+\beta_7 IPP + \varepsilon$

$SCP=\beta_0+ \beta_8 IPP + \beta_9 RF + \varepsilon$

$SCP=\beta_0+\beta_{10} IPP+\beta_{11} RF+\beta_{12} IPP*RF +\varepsilon$

Table 5 shows the R^2 for international procurement practices, regulatory framework and supply chain performance.

Table 5: R^2 for International Procurement Practices, Regulatory Framework and Supply Chain Performance

Model	R	R Square	Adjusted R Square	Std. Error of the Estimate
1	.739a	0.55	0.543	0.27171
2	.777a	0.60	0.597	0.25515
3	.835a	0.70	0.689	0.22396

The results in Table 5 shows that the R squared for the moderating effect had varying values. The first step for regressing international procurement practices against supply chain performance had 55% while the second step of regressing international procurement practices and regulatory framework against supply chain performance had 60%. The third step which regressed international procurement practices, regulatory framework and the interaction term IPP*RF against supply chain performance had 70%. The Rsquare for model increased from 55% to 60% and 70% after the interaction term and thus we conclude that regulatory framework moderates the relationship between international procurement practices and supply chain performance of energy development agencies in Kenya.

Table 6: ANOVA for International Procurement Practices, Regulatory Framework and Supply Chain Performance

Model		Sum of Squares	df	Mean Square	F	Sig.
1	Regression	11.559	1	11.559	156.565	.000
	Residual	9.598	130	0.074		
	Total	21.157	131			
2	Regression	12.758	2	6.379	97.984	.000
	Residual	8.398	129	0.065		
	Total	21.157	131			
3	Regression	14.731	3	4.91	97.899	.000
	Residual	6.42	128	0.05		
	Total	21.151	131			

The ANOVA results indicated that all the three models were significant at 0.000<0.05. The F-Statistic for model one was ($F=156.565$, $p = 0.000<0.05$), the F-Statistic for Model two was ($F=97.984$, $p = 0.000<0.05$), the F-Statistic for model three was $F=97.899$, $P = 0.000<0.05$.

The regression of coefficients for international procurement practices, regulatory framework and supply chain performance are as shown in Table 7.

Table 7: Regression Coefficients for International Procurement Practices, Regulatory Framework and Supply Chain Performance

Model		B	Std. Error	Beta	t	sig.
1	(Constant)	2.831	0.056		50.321	0.000
	International Procurement Practices	0.224	0.018	0.739	12.513	0.000
2	(Constant)	2.759	0.055		49.790	0.000
	International Procurement Practices	0.107	0.032	0.355	3.364	0.001
	Regulatory Framework	0.140	0.033	0.452	4.292	0.000
3	(Constant)	2.018	0.129		15.686	0.000
	International Procurement Practices	0.059	0.029	0.194	2.017	0.046
	Regulatory Framework	0.088	0.03	0.286	2.972	0.004
	International Procurement Practices* Regulatory Framework	0.295	0.047	0.437	6.220	0.000

The regression of coefficients results shows that in step one, the regression model of supply chain performance on international procurement practices was significant with β=0.224, p=0.000<0.05) and supported by $T_{Calculated}$ =(1, 131)=12.513> $T_{Critical}$ (0.05, 131)= 1.658. In step two, the results show that the regression model of international procurement practices and regulatory framework on supply chain performance was significant with (β_1=0.107, p=0.001<0.05: β_2=0.140, p=0.000<0.05) and supported by $T_{Calculated}$ =(1, 131)= 3.364, 4.292> $T_{Critical}$ (0.05, 131)= 1.658. In step three, the results show that the regression model of international procurement practices, regulatory framework and the interaction term IPP*RF on supply chain performance was significant with (β_1=0.059, p=0.046<0.05: β_2=0.088, p=0.004<0.05: β_3=0.295, p=0.000<0.05) and supported by $T_{Calculated}$ =(1, 131)= 2.107, 2.972, 6.220> $T_{Critical}$ (0.05, 131)= 1.658.

The fitted models were:

SCP= 2.831+ 0.224IPP

SCP= 2.759 + 0.107IPP + 0.140RF

SCP= 2.018 + 0.059IPP + 0.088RF + 0.295IPP*RF

Where;

SCP= Supply Chain Performance

IPP= International Procurement Practices

RF= Regulatory Framework

IPP*RF= International Procurement Practices* Regulatory Framework

Since the P value of the interaction term (IPP*RF) is 0.000< 0.05 and the R^2 increased from 55% to 60% and 70% after the interaction term and thus, we conclude that regulatory framework moderates the relationship between international procurement practices and supply chain performance of energy development agencies in Kenya. The study thus rejected the null hypothesis and adopted the alternative hypothesis that there is a significant moderating effect of regulatory framework in the relationship between international procurement practices and supply chain performance of energy development agencies in Kenya.

4.4 DISCUSSIONS

The objective was to establish the moderating effect of regulatory framework in the relationship between international procurement practices and supply chain performance of energy development agencies in Kenya. The moderating effect of regulatory framework was assessed and results explained using coefficient of determination (R-Square), Analysis of Variance (ANOVA) and the regression coefficients. Hierarchical regression analysis was performed with an interaction term (a product of international procurement practices and regulatory framework) introduced as an additional predictor.

The first step for regressing international procurement practices against supply chain performance had 55% while the second step of regressing international procurement practices and regulatory framework against supply chain performance had 60%. The third step which regressed international procurement practices, regulatory framework and the interaction term IPP*RF against supply chain performance had 70%. The Rsquare for model increased from 55% to 60% and 70% after the interaction term and thus we conclude that regulatory framework moderates the relationship between international procurement practices and supply chain performance of energy development agencies in Kenya.

The ANOVA results indicated that all the three models were significant at 0.000<0.05. The F-Statistic for model one was (F=156.565, p = 0.000<0.05), the F-Statistic for Model two was (F=97.984, p = 0.000<0.05), the F-Statistic for model three was F=97.899, p = 0.000<0.05. The regression of coefficients results shows that in step one, the regression model of supply chain performance on international procurement practices was significant with β=0.224, p=0.000<0.05) and supported by $T_{Calculated}$ =(1, 131)=12.513> $T_{Critical}$ (0.05, 131)= 1.658. In step two, the results show that the regression model of international procurement practices and regulatory framework on supply chain performance was significant with (β_1=0.107, p=0.001<0.05: β_2=0.140, p=0.000<0.05) and supported by $T_{Calculated}$ =(1, 131)= 3.364, 4.292> $T_{Critical}$ (0.05, 131)= 1.658. In step three, the results show that the regression model of international procurement practices, regulatory framework and the interaction term IPP*RF on supply chain performance was significant with (β_1=0.059, p=0.046<0.05: β_2=0.088, p=0.004<0.05: β_3=0.295, p=0.000<0.05) and supported by $T_{Calculated}$ =(1, 131)= 2.107, 2.972, 6.220> $T_{Critical}$ (0.05, 131)= 1.658.

Since the P value of the interaction term (IPP*RF) is 0.000< 0.05 and the R^2 increased from 55% to 60% and 70% after the interaction term and thus, we conclude that regulatory framework moderates the relationship between international procurement practices and supply chain performance of energy development agencies in Kenya. The study thus rejected the null hypothesis and adopted the alternative hypothesis that there is a significant moderating effect of regulatory framework in the relationship between international procurement practices and supply chain performance of energy development agencies in Kenya.

The study findings are consistent with Ogot, Mulinge and Muriuki (2010) whose findings established that regulating procurement in profit oriented public corporations had significantly promoted transparency, quality and value for money in procurement carried out. Similarly, the findings of Narikan (2011) indicated that social value orientation, expected utility, legitimacy of the procurement law enforcement agency and perceptions of procedural justice were significant predictors of the public procurement regulatory compliance. The findings are also consistent with Sementelli (2010) who studied legal factors influencing public procurement in India by adopting factor analysis and reported that client related factors and legal auditor's professional requirements had the greatest influence on public procurement practices. The study further indicated that regulatory framework for procurement management needed to be prepared by policy makers, more public auditors needed to be trained on public procurement audit and managers be open to procurement audit as a positive management tool. Findings also indicated that prudent management of public procurement systems has been identified as very important to accelerated national development. Government policy tends to rely heavily on the professions of law, economics and operations management, particularly at the micro level.

Achuora, Arasa and Ochriri (2010) study findings indicate that technical audit factors have greatest influence on effectiveness of public procurement audit, followed by regulatory framework, client related factors and auditor's professional qualities respectively. The study recommends that a summarized regulatory framework for CDF procurement management be prepared by policy makers, more public auditors be trained on public procurement audit and the CDF managers be exposed to audit as a positive management tool. The World Bank (2016) postulates that prudent management of public procurement systems has been identified a very important to accelerated national development. For this reason, successive governments have realized that reformation in the procurement laws is a justification for judicious use of the taxpayer's money. Thus procurement regimes are strongly regulated and implemented to ensure attainment of value for money through transparency, fairness, cost -effectiveness, efficiency and promotion of competitive local industry. These uncoordinated and unregulated systems of procurement were the consequences of poor procurement situation leading to the much acclaimed reform of public procurement practices to instill trust and confidence in the public and the donor community.

Sementelli (2010) mentions that government policy tends to rely heavily on the professions of law, economics and operations management, particularly at the micro level. Government policy is a route to sales for the private sector to some of the biggest clients in the world, and has an impact on domestic economies and international trade. Clear government policies and transparent and efficient actions can foster and strengthen procurement policies so, from this point of view; public procurement is clearly a major economic driver and can be used to influence critical economic conditions.

Lenders and Pearson (2013) argues that purchasing and material management requires a wide range of standard operating procedure to deal with the normal daily tasks. The higher the volume in quantities and funds involved the higher the need to sound system. They also point out that procurement in the public institutions is regulated by laws and statutes. The public buyer must observe the legal structure governing procurement. The ultimate responsibility is to some legislative body and when the question of anything or interpretation of legal requirements on procurement arises, they will be referred to its legal affairs of the government agent. Burt et al., (2010) points out that right rule through statutes, exclusive orders, regulation policies and procedures, size, purchasing power and sovereignty gave the skilled government acquisition or

supply management official great power. He further stated that at the state and local government level, state statutes are often implemented in codes of regulation.

Murray (2018) highlights why political procurement is important; he explains that the public sector works within a narrow framework of democratic governance strategy and management, where local people exercise their right to determine how and by whom they should be governed through the ballot box. He continues further to explain that, in turn, those who are elected not only have a representative advocacy role but are democratically accountable to their electorate for their decisions.

Lysons (2016) asserts that the government sets the rules of conduct and enforces them to control and regulate the conduct of people to protect their property and contractual rights with an access to security justice. The government seeks more socially acceptable objectives some of them being to achieve acceptable standards of equality, to protect individuals from others and from themselves not forgetting to stabilize the economy against income and price level fluctuation. Government interventions usually involve both direct cost of administration and indirect cost associated with interface with price mechanism. Policies try to focus everyone in an organization to a common goal priority by translating co-operate strategies into measurable objectives, throughout the various functions and levels of the organization. As everyone in the organization understands the strategic plan and is able to drive several goals from the plan and determines who each goal lays into their own deadly activities.

This is in line with Weishaar (2013) who found that the inception of legislation in different countries has had a number of effects, namely: procurement legislation helps to get the best sources of goods and services in the market by establishing the best suppliers to contract, reduction of supply base opens up the way to higher degree of efficiency in procurement performance which in turn translates to success in an organization's performance; procurement systems in the public sector maximize overall value for money for citizens mainly due to the following: considerations of issues such as fair play, client satisfaction, public interest, justice, honesty and equity; and the application of the highest ethical standards in public procurement helps to a large extent in ensuring value for public resources and national development.

5.0 CONCLUSIONS

The study concluded that there was a significant moderating effect of regulatory framework in the relationship between international procurement practices and supply chain performance of energy development agencies in Kenya. In addition from the responses, the study found that the agencies has open contracting requirements between procurement personnel and suppliers community. The agencies has clearly expressed and readily available policies, procedures and regulations from the energy sector and the tax regime in Kenya is favorable for international public procurement by the agency. The international public procurement guidelines favored the operations of the agency to a great extent and the agencies maintains legal advice and confidentiality in the international procurement process. Under the legal information provided to the agency is complete, timely and accurate where they had put in place direct legal control mechanisms by closely involving stakeholders into the international procurement process. In overall, the regulatory framework in which the agency operated influenced supply chain performance.

6.0 RECOMMENDATIONS

The study recommended that all the energy corporations should establish supplier appraisal audit policies because this will help them ensure that they will deal with qualified and competent suppliers. It was also recommended that all the energy corporations should adopt the ethical policies and guidelines that have been established by the Public Procurement and Regulatory Authority (PPRA) as well as the Kenya Institute of Supplies Management (KISM) since they are all aimed at ensuring that all the public institutions conduct their supply chain processes in line with the Public Procurement and Asset Disposal Act (PPADA), 2015. The energy corporations should also establish policies on ethical use of information technology since this will be a major boost to ensure that there is transparency and accountability in the supply chain performance...

7.0 REFERENCES

Chen, I. J., & Paulraj, A. (2004). Understanding supply chain management: critical research and a theoretical framework. *International Journal of production research*, *42*(1), 131-163.

Chokshi, M., Farooqui, H. H., Selvaraj, S., & Kumar, P. (2015). A cross-sectional survey of the models in Bihar and Tamil Nadu, India for pooled procurement of medicines. *WHO South-East Asia journal of public health*, *4*(1), 78.

Disdier, A. C., Fontagné, L., & Tresa, E. (2018). Public Procurement-Related Protection: Insights from the Global Trade Alert Database.

European Commission (2016). *Report from the Commission to the Council and the European Parliament - EU Anti-Corruption Report*, accessed online on 8 June 2018 at http://ec.europa.eu/dgs/home-affairs/e-library/documents/policies/organized-crime-and-human-trafficking/corruption/docs/acr_2016_en.pdf

Golafshani, K. (2003). Entry regulation as a barrier to entrepreneurship. *Journal of Financial Economics*, 82,591-629.

Granovetter, M. (1985). Economic action and social structure: The problem of embeddedness. *American journal of sociology*, *91*(3), 481-510.

Handfield, R.B., & Nichols Jr., E.L. (2012). *Introduction to Supply Chain Management*. Upper Saddle River, NJ: Prentice-Hall.

Kamotho, K. D. (2014). *E-Procurement and procurement performance among state corporations in Kenya*. University of Nairobi.

Kenya Trade Network Agency (Kentrade) (2016). *Procurement Review Report*. Available from:http://www.ppoa.go.ke/images/downloads/review-reports

Kenyan Energy Sector (University of Nairobi).

Kusi, L. Y., Aggrey, G. A., & Nyarku, K. M. (2014). Assessment of Public Procurement Policy Implementation in the Educational Sector (A Case Study of Takoradi Polytechnic). *International Journal of Academic Research in Business and Social Sciences*, *4*(10), 260.

Lysons (2016), *Procurement and Supply chain management* 8th Edition, New York: *Prentice Hall publishers.*

Ministry of Energy Agencies (2019). *Semi-Autonomous Agencies in the State Department of Energy*. Retrieved from: http://energy.go.ke/energy/ on 24th January 2019.

Molenaar, K. R., Sobin, N., & Antillón, E. I. (2010). A synthesis of best-value procurement practices for sustainable design-build projects in the public sector. *Journal of Green Building*, *5*(4), 148-157.

Mrope, N. P., Namusonge, G. S., & Iravo, M. A. (2017). Does Compliance with Rules Ensure Better Performance? An Assessment of the Effect of Compliance with Procurement Legal and Regulatory Framework on Performance of Public Procurement in Tanzania. *European Journal of Logistics, Purchasing and Supply Chain Management*, *5*(1), 40-50.

Muange, E., & Chirchir, M. (2016). Procurement Legislation and Performance of Constituency Development Fund Committees in Kenya. *International Journal of Supply Chain Management*, *1*(1), 19-33.

Nantege, G. (2011). *Procurement management and financial performance of banks in Uganda: case study-Fina Bank Uganda Limited* (Doctoral dissertation, Uganda Martyrs University).

Ngugi, J. K., & Mugo, H. W. (2012). Internal factors affecting procurement process of supplies in the public sector; a survey of Kenya government ministries. In *5th International Public Procurement Conference was held on August 17th*.

Osoro, A. (2018). *Challenges Affecting Performance of Supply Chain Systems in the Petroleum Industry in Kenya* (Doctoral dissertation, COHRED-JKUAT).

Owili, A. (2013). E-procurement implementation and transaction cost among the Non-governmental organizations in Kenya.. *University of Nairobi, Kenya*.

Puschmann, T., & Alt, R. (2015). Successful use of e-procurement in supply chains. *Supply Chain Management: an international journal*, *10*(2), 122-133.

Thai, K. V. (2017). International public procurement: Concepts and practices. In *International handbook of public procurement* (pp. 33-56). Routledge.

Thoumrungroje, A. & P. Tansuhaj. B. (2017). Globalization effect and firm performance. *Journal of International Business Research,* 6(2): 43-58

UNCTAID (2010). *Managing international Logistics* "Module 10 of ITC Modular

World Bank (2016).*National Competitive Bidding (NCB)* [Online].Available at http://go.worldbank.org/ QNQHR747P0.

Zhong, R. Y., Newman, S. T., Huang, G. Q., & Lan, S. (2016). Big Data for supply chain management in the service and manufacturing sectors: Challenges, opportunities, and future perspectives. *Computers & Industrial Engineering*, *101*, 572-591.