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Robert Wamalwa Wandera[1], Prof. Gregory Simiyu Namusonge[2] and Prof. Maurice Matendechere Sakwa[2]

[1]Ph.D. Candidate, Jomo Kenyatta University of Agriculture and Technology

[2]Senior Lecturer, Jomo Kenyatta University of Agriculture and Technology

Emails: rwamalwawandera@gmail.com, gnamusonge@jkuat.ac.ke, mmsakwa@gmail.com

Abstract

Purpose: The study explored the effect of Inter-supplier rivalry practices on the performance of motor vehicle assembly companies in Kenya.

Methodology: This study was guided by industrial marketing and purchasing (IMP) theory. The study applied a cross-sectional exploratory descriptive conclusive survey research design with a mixed approach of qualitative and quantitative research. Primary data was derived using questionnaires, supported by secondary data as the main instrument for collecting data based on a five point likert scale on 24 motor vehicle assembly companies in Kenya using non probability sampling. Exploratory factor analysis, analysis of mean, model summary, ANOVA and regression analysis were applied in analyzing, interpreting data and deriving the econometric model.

Findings: The study established that inter-supplier rivalry practices were a significant predictor of organizational performance of motor vehicle assembly companies in Kenya. These results through hierarchical regression established that inter-supplier rivalry practices of price competition, innovations, customer focus influence organizational performance of motor vehicle assembly companies in Kenya.

Keywords: *Inter-supplier rivalry practices, Organizational performance, Relational marketing supply chain, multi-sourcing, Motor vehicle assembly companies*

INTRODUCTION

Fundamental to the discipline of supply chain management is sustainable supply chain, which depicts organizations are robust and agile (Brintrup et al., 2016; Qamar et al., 2018). These systems transcend to seamless productions using multi-sourcing practices (Oshri, 2011; Bhattacharya et al., 2018; Singh et al., 2019). Recent developments in the field of inter-supplier rivalry practices have led to organizations design interest in developing price competition, innovations and customers focus (Ralston et al, 2017). Over the past century, there has been a major decline in the use of single sourcing as opposed to multi-sourcing strategy where inter-supplier rivalry practices play a elemental role in sustaining organizations (Ralston et al, 2017; Krancher & Stürmer, 2018;Panigrahi et al., 2019). To date, there has been little agreement on whether firms should apply single or multiple sourcing for supply of component/parts and accessories (Xin, 2017; Bhattacharya et al., 2018). The issue of multi-sourcing practices has recently grown in importance (Kotlarsky et al., 2011; Bhattacharya et al., 2018). Many pratitioners and academicians appreciate the role played by intersupplier rivalry practices in attaiing multisourcing and single sourcing practices among many motor vehicle assemblers in Kenya and across the world of (Krancher & Stürmer, 2018; Bomett et al., 2020). The subject of inter-supplier rivalry practices has recently grown in importance (Kharub & Sharma, 2017; Kotler & Armstrong, 2018). To date, relationship practices have taken centre stage both in academia and practice (Ellram et al., 2013; Ralston et al, 2017).

Objectives

The general objective was to ascertain how multi-sourcing practices influence organizational performance of motor vehicle assembly companies in Kenya. The specific objective of this study was to establish the effect of inter-supplier rivalry practices on organizational performance of motor vehicle assembly companies in Kenya.

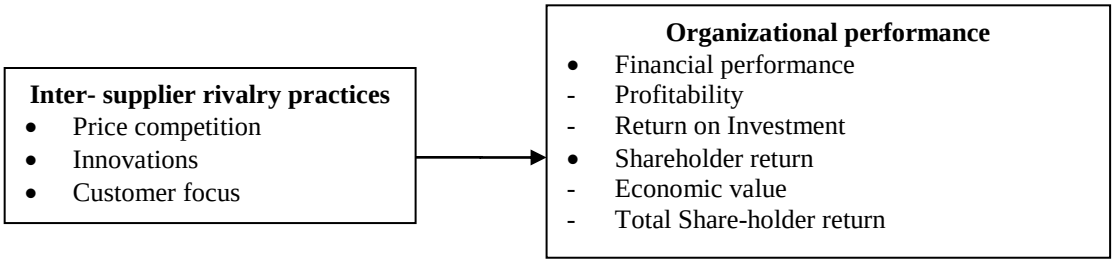
LITERATURE REVIEW

Industrial marketing and purchasing (IMP) theory plays a vital role sustaining inter-supplier rivalry practices among firms with motor vehicle assembly not exceptional. The debate centering on industrial marketing and purchasing (IMP) theory plays a foremost role in developing long-term trusting relationships between buyers, suppliers, and other stakeholders (Kaufmann et al., 2018). This theory is anchored on competition among partners in the industry (Fathi & Ahmadian, 2016; Kharub & Sharma, 2017). Numerous studies have argued that inter-supplier rivalry using innovation practices in the automotive sector in the last 13 years is well structured as radical innovations are required to fit into the prevailing environmental standards (Steve et al., 2017). Researches to date focus on developing long-term association with customers by driving competition among players in the industry (Morsy, 2017). Conversely organizations evaluate inter-supplier rivalry using; relationships between IT competences and innovation capacity (Tuan, 2016; Şahin et al., 2017).

Data from several studies investigated supply chain structure of traditional automotive industry with the supply chains from the Republics of South Korea and China (Sakuramoto et al., 2019). They established that traditional automakers have higher transaction costs compared to new automakers due to the horizontal structure of their supply chains (Mikko & Mahoney, 2020). The first systematic study of inter-supplier rivalry practices was reported by Teece et al. in 1997, developed dynamic capabilities framework that analyzed the sources and methods of wealth creation by private enterprise firms operating in environments of rapid technological change (Sharmelly & Ray, 2016). The study established that competitive

advantage of firms is seen as resting on distinctive processes, shaped by the firm's (specific) asset positions, and the evolution path(s) it has adopted or inherited (Teece, 2018). Most studies of inter-supplier rivalry practices have been carried out in many fields such as marketing in promoting products in the automotive sector (Lamprecht & Tolmay, 2017). Until now, this method has specifically been applied to promoting manufactured vehicles but not to sourcing of components in the auto assembly firms in Kenya (Makhitha & Wright, 2019; Bomett et al., 2020).

Conceptual Framework



Independent variables **Dependent variable**

Figure 1: Conceptual framework

METHODOLOGY

This study used a mixed methods approach that was anchored on Positivism and Interpretivism epistemological orientations in collecting, analyzing and interpreting final findings using various statistical tools that were pragmatically assigned (Ryan, 2018; Tabachnick & Fidell, 2019). The moral philosophy (axiological) framework for this study was attained by attaining linearity, independence, and homoscedasticity of final data besides having a honest, candid filling of questionnaires notwithstanding (Ayiro, 2021).

Research Design

This study applied a cross-sectional descriptive exploratory research design with a mixed approach of qualitative and quantitative research in the motor vehicle assembly companies in Kenya (Creswell & Clark, 2017). A cross-sectional survey method was used to obtain the empirical data to determine the linkages between variables by allowing triangulation to take place (Saunders et al., 2016).

Population of Study

The study used 24 companies for motor vehicle assembly and franchisers as the target population (Bomett et al., 2020).

Table 1: Target population

Stratum		Population	Percentage
Assembly	companies	42	100
Franchisers	companies	68	100
Total		**110**	**100**

Source: Bomett et al. (2020)

Sampling Frame

A survey of 24 firms that consisted of 4 motor vehicle assemblies and 20 franchisers was utilized (Creswell & Clark, 2017). The respondents in the study were located mainly in Nairobi, Thika, and Mombasa respectively. The study targeted 1 professional from each of the listed sectional heads in the motor assembly companies of; assembly/research and design/planning, procurement, engineering/electrical, finance, quality standards, and paints departments that work in these plants. On the other hand, franchisers only have procurement/finance and engineering/electrical/paints sections.

Sample Size and Sampling Technique

The sample size for this study was obtained using (Maskey et al., 2018) formula for the finite population as follows;

$$n = \frac{N}{\left(1 + Ne^2\right)}$$

Where,

n = sample size

N = population size

e = error term at 95% confidence interval

$$n = \frac{110}{\left(1 + 110 \times 0.05^2\right)} = 87$$

This study used 87 respondents making the census technique appropriate in the study as shown in Table 2 (Beauducel & Hilger, 2019).

These were further distributed using the law of proportions between assemblers and franchisers. This study employed a non-probability sampling technique using judgmental design as derived by MacCallum et al., in 1999 (Creswell & Clark, 2017; Maskey et al., 2018).

Table 2: Sample size

Stratum	Population	Sample size
Assembly companies	42	30
Franchiser companies	68	57
Total	**110**	**87**

Data Processing and Analysis

This study used both qualitative and quantitative means by coining views from respondents and analyzed quantitative data using the EFA technique, where complex patterns were exposed by exploring data sets with predictions established (Tabachnick & Fidell, 2019). The following econometric equation model was derived to explains the relationship between supplier-buyer relationship practices and organizational performance (Schumacker & Lomax, 2015) as indicated by $Y= \alpha +\beta_1X_1+\beta_2X_2+\beta_3X_3+\mu$

RESULTS

Response Rate

Questionnaires were distributed to 87 employees of assembly and franchiser companies. Only 82 questionnaires were reasonably and adequately completed representing a 94% response rate as indicated in Table 3 (Morgan et al., 2016).

Table 3: The response rate for questionnaires

Response	No.	Percentage
Administered Questionnaire	87	100
Returned	82	94
Un-returned	05	06

Reliability Analysis

This test results is 0.801 indicating that variables is reliable (Tsagrisa & Pandis, 2021).

Table 4: Summary of Cronbach's alpha reliability co-efficients on actual data

Scale	No. Items	Cronbach's Alpha	Conclusion
Inter-supplier rivalry practices	23	.801	Reliable

Validity Test

This test is redone to test if the final test results fulfill validity test requirements (Lelissa, 2018). The results in Table 5 demonstrate that Bartlett's test of sphericity indicates that null hypotheses have an identity matrix and their p-values are less than ($p<0.001$, a prerequisite rule for factor analysis (Braeken & Van, 2017). Conversely, these results indicate that the sample size is adequate for factor analysis (Goretzko et al., 2019).

Table 5: Test for sample adequacy for factor analysis (KMO and Bartletts Test)

Sub-scale	Kaiser-Meyer-Olkin (KMO Index)	Bartlett's Test of Sphericity		
		Approx. Chi-Square	Df	Sig.
Inter-supplier rivalry practices	.738	607.611	253	.000

Normality/Linearity Test

The results in Table 6 and Appendix A indicates normality/linearity of data as it falls within the acceptable range of these tests (1.5 and 2.5) and (< 3 and < 10) respectively (Braeken & Van Assen, 2017; Hair et al., 2017; Tsagrisa & Pandis, 2021).

Table 6: Durbin-Watson test statistic: Model Summary

Model	R	R Square	Adjusted R Square	Std. Error of the Estimate	Durbin Watson
1	.411[a]	.169	.1152	.97561	1.963

a. Predictors: (constant), Supplier evaluation practices, Inter-supplier rivalry practices, Supplier-buyer relationship practices, Logistics practices, Procurement planning practices

b. Dependent variable: Organizational performance

Heteroscedasticity/Homoscedasticity test

Results in appendix B display a pattern of data points spread moving to the right end, indicating mild heteroscedasticity (Hardle & Simar, 2015; Lelissa, 2018). This indicates that the assumption of homoscedasticity was not significantly violated (Gujarati et al., 2017).

Multi-collinearity and Singularity test

The results in Table 7 indicate that multi-collinearity did not exist as Tolerance and VIF values were more than 0.1 and less than 10 respectively (Kim, 2019).

Table 7: Test for multi-collinearity

Model		Collinearity statistics	
		Tolerance	VIF
1	Inter-supplier rivalry practices	.531	1.882

a. Dependent variable: Organizational performance

The singularity test results in appendix C have a determinant of 0.040> 0.00001, fulfilling the rule of thumb, that the data is normal and all questions correlated well (Kyriazos, 2018; Tsagrisa & Pandis, 2021).

Descriptive statistics for inter-supplier rivalry practices

Respondents were presented with twenty-three (23) opinion statements as indicators for measuring the variable as presented in Table 8 on a five-point Likert scale. These responses were converted to a continuous scale by computing percentages (Ayiro, 2021).

Table 8: Descriptive statistics for inter-supplier rivalry practices

Opinion Statement	SD (%)	DA (%)	UD (%)	A (%)	SA (%)
Our organization develops networks with suppliers through tiers for parts	8.5	4.9	9.8	40.2	36.6
We manage the rivalry between our suppliers by managing switching costs for parts	18.3	8.5	3.7	22.0	47.6
Our organization manages competition by differentiating its parts from others	3.7	2.4	8.5	15.9	69.5
Our organization uses only new parts that are certified as having quality	3.7	3.7	11.0	15.9	65.9
N=82					

Sixty-nine point nine percent (69.9%) of respondents strongly agreed that their organization manages competition by differentiating its parts from others agreed. This finding coincides the asction that organizations remain competitive if they can sustain several tiers that exist in automotive component supply chains (Wilhelm et al. (2016; Tolmay & Venter, 2017; Tambade et al., 2019). Sixty-nine point five percent (69.5%) of respondents strongly agreed that their organization use only new parts that are certified as having quality (Schiavo et al., 2018). Forty-seven point six percent (47.6%) of respondents strongly agreed that their organization manages rivalry between suppliers by managing switching costs for suppliers. These results affirm that several other forces impinge on market rivalry (Ellram et al., 2013; Ralston et al., 2017; Suh & Kim, 2018).

Factor Analysis for Inter-Supplier Rivalry Practices

Twenty-three (23) items describing inter-supplier rivalry practices were subjected to factor analysis as presented in Table 9 (Warne & Larsen, 2014).

(i) Communalities for inter-supplier rivalry practices

Table 9: Communalities for inter-supplier rivalry practices

Description	Initial	Extraction
We manage the rivalry between our suppliers by managing switching costs for parts	1.000	.654
Our organization manages competition by differentiating its parts from others	1.000	.652
Our organization develops parts that are either cheap, expensive, or different from others	1.000	.830
Our organization patents her parts to mitigate rivalry competition	1.000	.596
Our organization allows our suppliers to have networks with other suppliers	1.000	.528
Our organization sells our parts in restricted shops as a means of advertising parts	1.000	.443
Our organization uses technology to re-engineer our parts worldwide	1.000	.675
Our organization uses technology in tracking our component/parts and accessories worldwide	1.000	.407
Our organization applies greater supplier intelligence to all our suppliers	1.000	.676

Extraction Method: Principal Component Analysis.

The results indicate that nine (9) factors explained common variation on inter-supplier rivalry practices (Koyuncu & Kılıç, 2019). These findings demonstrate that 40.7% of the variance in "applying technology to track component/ parts and accessories worldwide" is accounted for, whereas 83% of the variance in "developing of parts that are cheap, expensive or different from others" is accounted for (Fathi & Ahmadian, 2016; Xiao et al., 2019). This variance was factored into four factors as displayed in Table 10.

(ii) Total variance explained

Table 10: Total variance explained for inter-supplier rivalry practices

Component	Initial Eigen values			Extraction of squared loadings			Rotation sums of squared loadings[a]		
	Total	% of Variance	Cumulative %	Total	% of Variance	Cumulative %	Total	% of Variance	Cumulative %
1.	2.749	24.990	24.990	2.749	24.990	24.990	2.050	18.639	18.639
2.	1.595	14.499	39.489	1.595	14.499	39.489	1.846	16.786	35.425
3.	1.160	10.547	50.036	1.160	10.547	50.036	1.443	13.116	48.541
4.	1.089	9.901	59.937	1.089	9.901	59.937	1.254	11.396	59.937
1	1.335	3.045	100.000						

a. Extraction Method: Principal component analysis.

b. When components are correlated, sums of squared loadings cannot be added to obtain a total variance.

Twenty-three (23) measures on inter-supplier rivalry practices were subjected to factor analysis and four (4) loadings were retained for further analysis (Loehlin & Beaujin, 2017). These factors had a total variance accumulation of 59.937% (Koyuncu & Kılıç, 2019). Factor contribution was as follows; factor one 24.990%, factor two 14.499%, factor three 10.547%, and factor four 9.901% of the variance respectively (Tabachnick & Fidell, 2019). These factors were rotated in Table 11.

(iii) Rotated Component Matrix

Table 11 presents the results of the analysis on the rotated component matrix.

Table 11: Rotated component matrix for inter-supplier rivalry practices items

Description	1	2	3
Our organization patents her parts to mitigate rivalry competition	**.759**	.039	-.041
Our organization sells our parts in restricted shops as a means of advertising parts	**.621**	.110	.094
We manage the rivalry between our suppliers by managing switching costs for parts	**.607**	-.265	.251
Our organization uses technology in tracking our component/parts and accessories worldwide	**.592**	.190	.136
Our organization uses technology to re-engineer our component parts worldwide	-.176	**.769**	.148
Our organization applies greater supplier intelligence to all our suppliers	.333	**.724**	-.088
Our organization allows our suppliers to have networks with other suppliers	.140	**.691**	.166

Our organization develops parts that are cheap, expensive, or different from others	-.017	.109	**.902**
Our organization manages competition by differentiating its parts from others	.343	.132	**.690**

Extraction method: Principal component analysis.

Rotation method: Varimax with Kaiser Normalization.

a. Rotation Converged in 5 Iterations.

The rotated component matrix illustrates the existence of positive correlations between price competition, innovations, and customer focus (Tabachnick & Fidell., 2019). The main loadings on component one (1) were items from sub-concepts on Innovations. Component one (1) was named innovations. The main loadings on component two (2) were items from sub-concepts on customer focus and one on Innovations. Component two (2) was named customer focus. The main loadings on component three (3) were items from sub-concepts on price competition. Component three (3) was named price competition. Descriptive analyses of these factors were identified through rotation by estimating mean scales (Lorenzo-Seva & Van, 2016). These factors were checked using multivariate descriptives on a scale of 1.0 to 5.0 (Pituch & Stevens, 2016).

(iv) Analysis of fhe Mean For Inter-Supplier Rivalry Practices

Table 12 presents the results of the mean analysis for inter-supplier rivalry practices

Table 12: Analysis of the mean for inter-supplier rivalry practices

Definition	Mean	SD	Cronbach's-Alpha
Innovations	3.5610	1.01574	.616
Customer focus	3.0244	1.10216	.648
Price competition	4.0793	1.11241	.557

Key: 1.00-1.80=Strongly Disagree; 1.81-2.60=Disagree; 2.61-3.40=Undecided; 3.41-4.20=Agree; 4.21-5=Strongly Agree

The study indicates that inter-supplier rivalry practices owing to price competition were the most important issue to organizational performance indicated by a mean score of 4.0793, equivalent to Agree on the ranking scale. This finding coincides with the assertion many automakers have changed focus from price to quality when seeking suppliers, whereby price cannot be the only consideration (Masoumi et al., 2019). This finding indicates that all players in the motor vehicle assembly industry uphold quality other than price competition when sourcing for components/parts/accessories (Hesping & Schiele, 2016). Customer focus had a mean score of 3.0244, equivalent to Undecided on the ranking scale. This contradicts the finding that risk mitigation strategy might be the investment in close customer-supplier relationships (Fan & Stevenson, 2018). This finding indicates that players in the motor vehicle assembly industry are undecided when sourcing for component/parts/accessories as to whether to pursue durability, price, location, and conventional trends. Innovation had a mean score of 3.5610 which is equivalent to Agree on the ranking scale. This finding coincides with Ravichandran (2018) that firms with higher innovation capacity can leverage their digital platforms to enhance agility (Tuan, 2016). This finding indicates that motor vehicle

assembly firms in Kenya pursue innovation as a key competitive platform within the industry (Becker, 2016; Tambade et al., 2019).

(v) Model Summary Test Results for Inter-Supplier Rivalry Practices and Organizational Performance

To estimate the effect of inter-supplier rivalry practices on the performance of motor vehicle assembly companies in Kenya, a coefficient of determination was computed using regression analysis as shown in Table 13.

Table 13: Model summary test results for inter-supplier rivalry practices and organizational performance

Model	R	R- square	Adjusted R-square	Std. Error of the Estimate	Durbin-Watson
1	.229[a]	.052	.003	1.04294	1.905
a. Predictors: (Constant), Price competition, Innovations, Customer focus					
b. Dependent variable: Organizational performance					
1	.361[a]	.131	.085	1.02145	1.905

a. Predictors: (Constant), Price competition, Innovations, Customer focus

b. Dependent variable: Organizational performance

The results in model 1 indicate that the coefficient of determination (R^2= 0.052) and coefficient of correlation (R-value) are 0.229 at a 95% confidence interval respectively. The coefficient of determination indicates that 5.2% of the variation in organizational performance is influenced by inter-supplier rivalry practices of; price competition, innovations, and customer focus, whereas 22.9% explains the relationship between predictor and criterion variables. In model 2, (R^2=.131) and (R-value=0.361) at 95% confidence interval respectively. Therefore coefficient of determination is 13.1% and the coefficient of correlation is 36.1% respectively. The coefficient of determination indicates that 13.1% of the variation of organizational performance is influenced by inter-supplier rivalry practices, whereas 36.1.9% explains the relationship between predictor and criterion variables (Tsagrisa & Pandis, 2021). Therefore, 13.1% of inter-supplier rivalry practices of; price competition, innovations, and customer focus strongly influence the performance of motor vehicle assembly companies in Kenya.

(vi) ANOVA test for Inter-supplier rivalry practices and organizational performance

Table 14 presents the test results of Anova for Inter-supplier rivalry practices and Organizational performance

Table 14: ANOVA test results for inter-supplier rivalry practices and organizational performance

Model		Sum of square	Df	Mean square	F	Sig
Regression		4.623	4	1.156	1.062	.381[a]
1	Residual	83.755	77	1.088		
	Total	88.378	81			

a. Predictors: (Constant), Customer focus, Innovations, Price competition

b. Dependent variable: Component 1, Organizational performance

	Regression	12.063	4	3.016	2.890	.028[a]
2	Residual	80.339	77	1.043		
	Total	92.402	81			

a. Predictors: (Constant), Customer focus, Innovations, Price competition

b. Dependent variable: Component 2, Organizational performance

The results for the model are {F (4, 77) =1.062, p>.05)} and {F (4, 77) =2.890, p<.05)} respectively. This is higher than its critical value of 2.49 and F-Test rule of thumb (Pituch & Stevens, 2016; Kissell & Poserina, 2017).

(vii) Regression test between inter-supplier rivalry practices and organizational performance

Table 15 presents the results of regression coefficients test results for inter-supplier rivalry practices and Organizational performance.

Table 15: Regression coefficients test results for inter-supplier rivalry practices and organizational performance

Model		Unstandardized Coefficients		Standardized Coefficients	t	Sig
		B	Std.Error	Beta		
	(Constant)	3.025	.593		5.103	.000
	Innovations	.098	.114	.101	.863	.397
1	Customer focus	.073	.113	.077	.649	.519
	Price competition	.074	.110	.079	.674	.502
a.	**Dependent variable: component 1, Organizational performance**					
	(Constant)	2.054	.581	3.538	.001	
	Innovations	.095	.111	.095	.850	.900
2	Customer focus	.290	.111	.300	2.626	.010
	Price competition	-.037	.108	-.038	-.339	.735

a. Dependent variable: component 2, Organizational performance

The results present an econometric regression equation in two models: $Y=3.025+.098X_1+.073X_2+.074X_3$ and $Y=2.054+.095X_1+.290X_2-.037X_3$ for models 1 and 2 respectively (Gujarati et al., 2017). Y: Organizational performance, X_1: Innovations, X_2: Customers focus, and X_3: Price competition.

DISCUSSION

These results imply that inter-supplier rivalry practices of price competition, customers focus, and innovations significantly explain the variation in the performance of motor vehicle assembly companies in Kenya as indicated by the F-value of 2.890 (Ralston et al., 2017; Kissell & Poserina, 2017). From this model, both the constant, innovations, customers focus and price competition significantly contributes to organizational performance (Ralston et al.,

2017; Kissell & Poserina, 2017). These results present an econometric equation of $Y=2.054+.095X_1+.290X_2-.037X_3$, whereby motor vehicle assembly companies in Kenya performed by 2.054 even without having inter-supplier rivalry practices in place. This factor contributed as; innovations (9.5%), customer focus (29%), and price competition (-3.7%) respectively towards organizational performance (Ellram et al., 2013).

CONCLUSION

This study investigated the effect of inter-supplier rivalry practices on the performance of motor vehicle assembly companies in Kenya; the null hypothesis were that inter-supplier rivalry practices have no significant effect on the organizational performance of motor vehicle assembly companies in Kenya. This study established that inter-supplier rivalry practices of price competition, innovations and customers focus significantly explain the variance on the level of performance of motor vehicle assembly companies in Kenya. This coincides with the findings by Ralston et al. (2017) that inter-supplier rivalry practices significantly explain the amount of variation in the level of performance of motor vehicle assembly companies in Kenya.

On the other hand on the overall model, motor vehicle assembler companies in Kenya insignificantly perform by 2.054 even without having inter-supplier rivalry practices in place. This finding concur with industrial marketing and purchasing (IMP) theory that trust between buyers, suppliers, and other stakeholders in the marketing value chain is essential in fulfilling long-term relationships in Kenyan motor vehicle assembly dyads. This study plays a fundamental in understanding various inter-supplier rivalry practices that exist in supply chain management by outlining various rivalry patterns influencing sourcing of critical components of assembly firms. Future research should be on the relationship between interpersonal ties, and price competition on sourcing in the motor vehicle assembly industry in Kenya.

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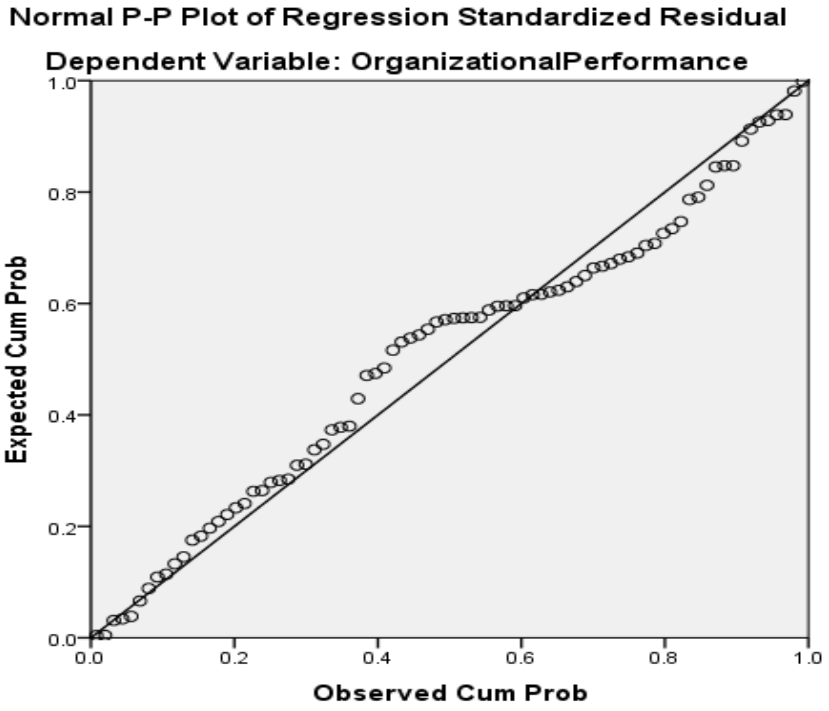
APPENDICES

Appendix A: Normality/Linearity test



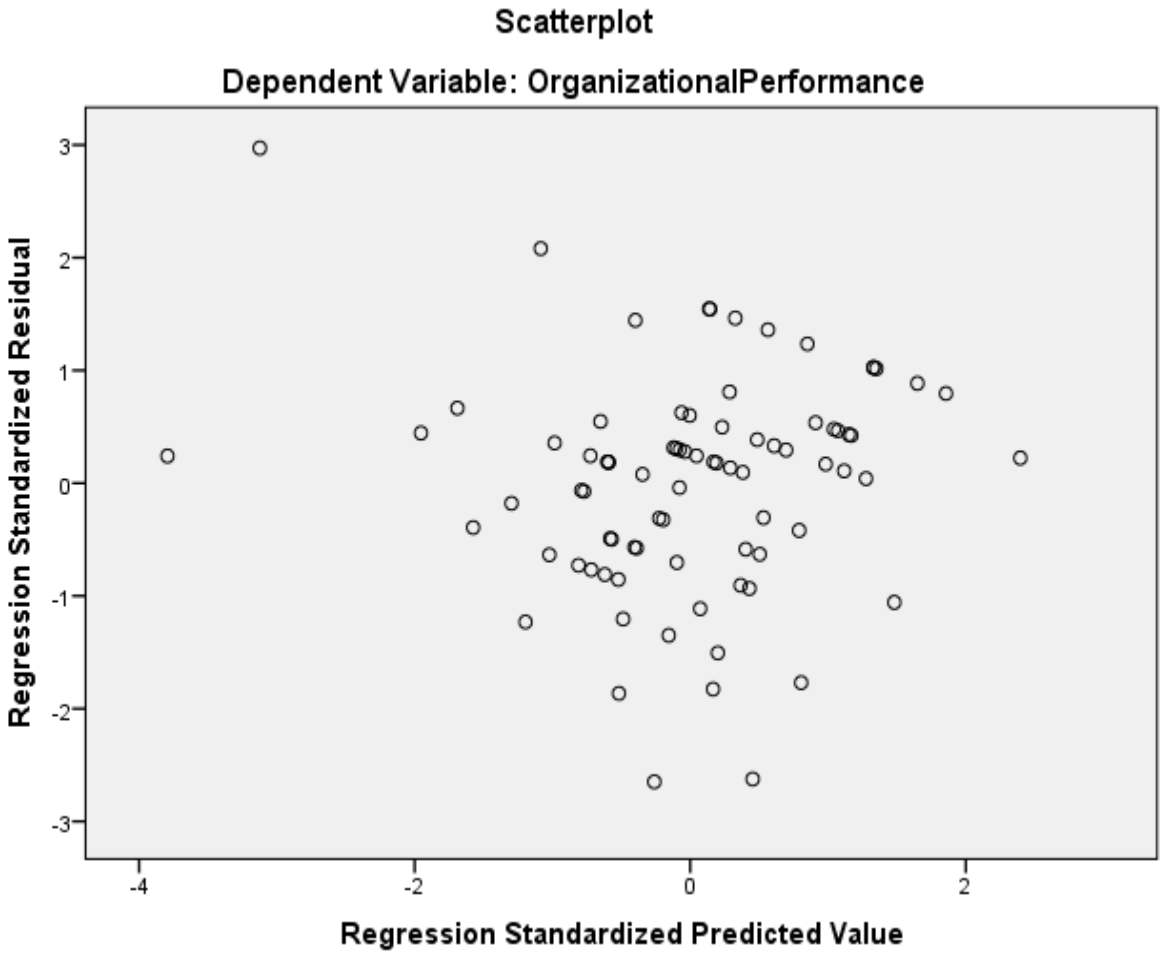
Normality Test using Skewness/Kurtosis

Scale	Skewness	Kurtosis	No
Supplier evaluation practices	-.232	-.272	82
Inter-supplier rivalry practice	-.712	1.975	82
Supplier-buyer relationship practices	-.724	1.097	82
Logistics practices	-.426	.392	82
Procurement planning practices	-1.121	2.577	82
Organisational performance	.226	-.464	82

a. Test distribution is Normal.

b. Calculated from data.

Appendix B: Heterscedasticity/Homoscedasticity test



Appendix C: Test for Singularity

	Supplier evaluation practices	Inter-supplier rivalry practices	Supplier-buyer relationship practices	Logistics practices	Procurement planning practices	Organizational performance
Supplier evaluation practices	1.000	.612	.621	.472	.555	.241
Inter-supplier rivalry practices	.555	.619	.642	.510	1.000	.380
Supplier-buyer relationship practices	.621	.821	1.000	.713	.642	.321
Logistics practices	.472	.649	.713	1.000	.510	.224
Procurement planning practices	.612	1.000	.821	.649	.619	.224
Organizational performance	.241	.224	.321	.224	.380	1.000
Supplier evaluation practices	.000	.000	.000	.000	.000	0.15
Inter-supplier rivalry practices	.000	.000	.000	.000	.000	.000
Supplier-buyer relationship practices	.000	.000		.000	.000	0.002
Logistics practices	.000	.000	.000		.000	.021
Procurement planning practices	000		000	000	.000	.021
Organizational performance	+	.021	.002	.021	000	.021

Determinant = .040