

Consequence of Market Stakeholders' Engagement in Cashew Nut Supply Chain Resilience in Tanzania Mediated by Institutional Legitimacy: Cooperatives Managers' Perspectives

Felex Vicent

Tanzania Institute of Accountancy (TIA), Tanzania,

Email: vicentfelix40@yahoo.co.uk

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Abstract

This study examined the consequence of market stakeholders' engagement on cashew nut supply chain resilience in Tanzania, with institutional legitimacy serving as a mediating factor. The objectives were to examine the consequence of market stakeholders' engagement on supply chain resilience, examine the consequence of institutional legitimacy on supply chain resilience, and examine the mediating role of institutional legitimacy in the relationship between market stakeholders' engagement and supply chain resilience. The study employed an ex-post facto research design and a simple random sampling technique to select 260 units of analysis. Data were collected using a structured questionnaire and analyzed through structural equation modeling (SEM). The findings indicate that market stakeholders' engagement has a positive and significant effect on supply chain resilience. Similarly, institutional legitimacy was found to exert a significant and positive influence on supply chain resilience. Additionally, the results revealed that institutional legitimacy partially mediates the relationship between market stakeholders' engagement and supply chain resilience. The partial mediation effect of institutional legitimacy represents a novel insight contributed by this study, providing a foundation for future research in supply chain management. The findings suggest that enhancing supply chain resilience requires both active engagement of market stakeholders and the presence of legitimate institutional frameworks.

Keywords: Supply chain resilience, Market stakeholders' engagement, Institutional legitimacy

1.0 INTRODUCTION

Supply chain resilience (SCR) is one of the measures that most organizations apply when facing supply chain disruption in the modern business environment (Hussain *et al.*,2023). The disruptions might emanate from natural calamities, unexpected competition, changes in market trends, and changes in customers' buying behavior (Ozdemir *et al.*,2022). Therefore, efficient supply chain management involves developing strategies that can enable the organization to respond quickly to operational disruption in a flexible manner (Piprani *et al.*,2022). To make an organization's supply chain resilient, one must be able to forecast and anticipate all possible disruptions and plan mitigating strategies accordingly (Tarigan *et al.*,2021). Through proper supply chain planning, the organization can be in a position to mitigate supply chain disruption impacts and improve its operations (Wong *et al.*,2020).

The supply chain of cashew nuts in Tanzania is managed by the Government through cooperatives (Cholobi,2023). Immediately after harvesting, farmers are required to collect their cashew nuts to these cooperatives and wait for public auction (Mruma, 2014). Once the cashew nut is collected, cooperatives advertise and receive bids from various interested buyers and later arrange a series of auctions using the initial price arrived after bid evaluation (Likwata & Venkatakrishnan, 2014). Despite this coordination, there have been a number of disruptions facing the cashew nut supply chain in Tanzania since independence (Nyambo & Ligate,2013). Market stakeholders have been complaining about their little engagement in the products' supply chain decision-making (Mitchell & Baregu, 2012). These caused the entire produce supply chain to be totally disrupted in the year 2017/2018(Aikaeli *et al.*,2021).

2.0 LITERATURE REVIEW

Market stakeholders' engagement (MSE) as an approach for identifying supply chain disruptions is recognized in stakeholder theory (Qazi *et al.*,2022). The theory enlightens the contribution of various market stakeholders' inputs in achieving supply chain resilience (Ergun *et al.*,2022). According to Ullah *et al.* (2022), supply chain resilience can be attained by utilizing pieces of information from market stakeholders and strategizing accordingly. Ignoring this information is one of the reasons that affect some firms' supply chains in the event of sudden disruption and cause their operations to collapse completely (El-Baz *et al.*,2023). Therefore, a resilient supply chain requires information sharing and collaboration between market stakeholders and institutions that have a role to play in the particular products' supply chain (De Grosbois & Fennell, 2022).

According to Qazi *et al.* (2022), market stakeholders' engagement in the supply chain is inevitable if at all the firm aims at achieving resilience. Various information received from these stakeholders is of greater use when the business plans for its product supply chain (Ergun *et al.*,2022). Among others, it enables the business to uncover possible disruptions in its operations and develop a mitigating plan (Razak *et al.*, 2021). Engaging market stakeholders in supply chain planning not only gives the business the advantage of receiving inputs from them but also is a way of making them feel like part and parcel of the firm's supply chain (El-Baz *et al.*,2023).

As long as market stakeholders mostly deal with product final consumers, it is obvious that their interaction is a good platform for sharing information (Colicchia *et al.*,2019). Developing both formal and informal mechanisms of sharing information can bridge the gap and minimize unnecessary disruptions in the supply chain (Yang *et al.*,2022). Although most businesses consider market stakeholders as strangers when setting their supply chain strategies, believing that they just deal with any product brought into the market for their own benefit, there is limited evidence that they have nothing to play in firms' supply chain resilience (Ergun *et al.*,2022). Based on the exposed limited evidence, this research paper prophesied that;

H1 Market stakeholders' engagement has a constructive plus momentous consequence on supply chain resilience

Legitimacy of regulating institutions in supply chain management is emphasized by various scholars of institutional theory when discussing the concept of resilience (Hartley *et al.*,2022). They argued that legitimate institutions receive inputs from supply chain stakeholders and collaborate with them as a way of mitigating disruption (Arora *et al.*,2021). Others contended that the regulating institution must respond to the received information timely manner to enhance their legitimacy (Rajesh, 2021). These researchers collectively emphasized the legitimacy of institutions involved in any business supply chain as a way of building trust between each other and dealing with disruptions mutually (Wu *et al.*,2023). When this practice is achieved, it reduces unnecessary uncertainties and augments supply chain resilience (Aigbogun *et al.*,2022).

According to Peters *et al.* (2023) legitimacy of regulating institutions in front of stakeholders sometimes tends to be difficult because of the rule enforcement role embedded in them. Some entities under their jurisdiction feel like the enforced rules are there to erode their profits (Gurzawska, 2020). These negative notions make them reluctant to comply with some industrial regulations. The reluctance

is likely to cause disruptions in the products' supply chain, which in turn could jeopardize the attainment of resilience. Although these scholars brought a strong theoretical suspicious argument which was not proved, based on the theoretical foundation, this research still assumes that;

H2 Institutional legitimacy has a useful and historic consequence on supply chain resilience

Stakeholder theory, as conceptualized in the supply chain context, revealed the possibility of market stakeholders' involvement to contribute to flow flexibility (Kayikci et al.,2022). This was reported in the research geared towards scrutinizing factors disrupting supply chain resilience (Wang & Pan,2022). Other researchers went further, looking at supply chain flexibility as a key business survival in periods of uncertainty (Bag & Rahman,2023). The theory, as applied to the subject matter, highlighted the contribution of various stakeholders in enhancing flexibility through information sharing and collaboration (Kaur et al.,2022). Although collaboration was mentioned by some researchers (Bhattacharya & Fayezi,2021), others came with a different opinion, arguing that, instead of enhancing flexibility, it tends to complicate the supply chain due to varied interests (Qazi et al.,2022).

Institutional theory scholars, on the other hand, theorized that the attainment of supply chain resilience brought up the issue of the legitimacy of institutions involved (Wu et al.,2023). They argued that, if the legitimacy of those involved could be questionable, there is a possibility of causing several disruptions along the supply chain (Peters et al.,2023). Among the identified powerful institutions in the supply chain are regulating institutions that set rules across the product chain (El-Baz et al.,2023). Illegitimate institutions in the supply chain might be a source of information distortion and create artificial disruptions (Gurzawska, 2020).

The utilization of stakeholder and institutional theories in the amplification of this research paper was well-thought-out and sensible owing to their established associations (Saeed & Kersten,2019). Stakeholder theory recommends the engagement of various stakeholders in supply chains as a way of mitigating disruption and realizing resilience for value creation (Qazi et al., 2022). Institutional theory, in addition, explains the prominence of the legitimacy of leading bodies to supply chain stakeholders to enable them to share pieces of information that can reduce unnecessary disruptions (Rha,2020). Grounded on this underpinning, this study postulates that;

H 3: Institutional legitimacy has a mediating consequence on the association between market stakeholders' engagement and supply chain resilience

3.0 METHODOLOGY

Positivism philosophically stances supported by the deductive approach were applied to guide this study (Saunders *et al.*, 2015). Explanatory design as part and parcel of the survey strategy was also utilized in informing the research (Thomas & McDonagh, 2013). The referred population to which the results of the study were generalized was 932 registered cooperatives from 4 regions of Mtwara, Lindi, Ruvuma, and Cost sourced from Tanzania Cooperative Development Commission (TCDC) statistics of 2024. The regions were selected as it consists of at least 97% of the cashew nut produced in Tanzania (Lukurugu, *et al.*, 2022). A simple random technique was applied in selecting 260 respondents using N: q ratio (Jackson, 2003). This intellectual contributed the estimation that a maximum of 20:1 or a minimum of 10: 1 can be adequate once structural equation modeling (SEM) is in use. Since the sum of indicators in this scholarly work was thirteen (13), the scholar found it prudent to use a 20:1 proportion, which brought about a sample size of 260 cooperatives.

Danish *et al.* (2017) informed us that, in order to keep a proportional sample in the research area, it is important to establish a number of respondents in the covered area, depending on the identified population. Proportional allocation allows for avoiding bias in the study findings. Calculations that led to the reasonable distribution of questionnaires in each research area are shown in Table 1 below.

Table 1: Sample Proportional per Region

REGION	COOPERATIVES	SAMPLE PROPORTION	NUMBER OF RESPONDENTS
Mtwara	300	300/932x260	84
Lindi	270	270/932x260	75
Ruvuma	238	238/932x260	66
Cost	124	124/932x260	35
Total	932		260

SCR was measured by four items as adapted from (Piprani *et al.*, 2022; Hussain *et al.*, 2022) while MSA was measured using five items from (Svensson *et al.*, 2016) and LEG using four items (Chaney *et al.*, 2016; Kim *et al.*, 2014). Five-point Likert-like rule, vacillating between 1 (strongly disagree) to 5 (strongly agree) were adopted to rank study questionnaire responses. The component of scrutiny was the cooperative managers.

Eloquent scrutiny and assessment of exploratory factor analysis (EFA) was supported by means of SPSS software version 25. The purpose remained to decide the rationality and consistency of variables and to appraise the conventions of the structural equation model. IBM AMOS software version 23 was applied in the creation of dimension and basic models over Confirmatory Factor Analysis (CFA). The following goodness of fit guides through their adequate limits $CMIN/DF(X^2/df) \leq 3$, $RMR \leq .08$, $GFI \geq .90$, $CFI \geq .90$, $NFI \geq .90$, $TLI \geq .90$, $RFI \geq .90$, $PCFI \geq .50$, $RMSEA \leq .08$ were adopted (Gupta, 2015; Hair *et al.*, 2014; Malhotra *et al.*, 2017).

4.0 FINDINGS AND DISCUSSION

The analysis process was started by testing SEM assumptions. Linearity was assessed to verify the relationship between indicators establishing one construct and across all constructs. Absence of multicollinearity was also tested to confirm whether indicators which is purported to measure a construct really measure it. Multivariate normality was checked by skewness and kurtosis based on the limits of -3 and 3, together with -2 and 2, respectively, in order to draw a conclusion on the ideal distribution of the collected data (Prasojo *et al.*, 2020). More explanation of multivariate normality is offered in Table 2 below.

Table 2: Normality Test

Variable	min	max	skew	c.r.	kurtosis	c.r.
MSE1	1.000	5.000	-.554	-4.598	.295	1.249
MSE2	1.000	5.000	-.583	-4.954	.469	1.987
MSE3	1.000	5.000	-.736	-6.217	.612	2.589
MSE4	1.000	5.000	-.838	-6.325	.706	2.881
MSE5	1.000	5.000	-.339	-2.838	.168	.718
LEG4	1.000	5.000	-.748	-5.400	.304	1.288
LEG3	1.000	5.000	-.823	-6.775	.425	1.685
LEG2	1.000	5.000	-.726	-6.080	.124	.481
LEG1	1.000	5.000	-.624	-5.334	.361	1.469
SCR4	1.000	5.000	-.862	-7.439	.759	3.168
SCR3	1.000	5.000	-.938	-8.346	1.485	5.839
SCR2	1.000	5.000	-1.067	-8.235	1.279	5.452
SCR1	1.000	5.000	-.853	-6.144	.265	1.157
Multivariate					19.652	9.486

Reliability and validity of the study concepts were checked through Cronbach's alpha (CA) and Average Variance Extracted (AVE). Outcomes confirmed all study variables estimates to be beyond 0.7 through the CA test, hence reliable (Orscelik *et al.*, 2021). The AVE values of all constructs were also proved to be

beyond 0.5 (Fornell & Larcker, 1981; Prasajo *et al.*, 2020). These outcomes gave sufficient evidence of the study's construct validity and reliability.

Table 3: Reliability and Validity Test

Variable	Indicators	CA	CR	AVE
MSE	5	0.892	0.877	0.589
SCR	4	0.871	0.849	0.584
LEG	4	0.842	0.853	0.591

Valuation of the sum and agreed indicators creating a particular variable was established by means of EFA. Consequences proved all three variables under contemplation to be well fitted, as evidenced by KMO beyond 0.7 (Mia *et al.*, 2019). Battle's test of sphericity (BTS) demonstrated the least p-values under .001 for individual variable (Zou *et al.*, 2020). These findings were adequate to reject the null hypothesis.

Table 4: KMO and BTS Test

Variable	Indicators	KMO	BTS
SCR	5	.728	756.39 (p<.001)
MSE	4	.848	737.68 (p<.001)
LEG	4	.854	532.42 (p<.001)

Construct rational adjustments exposed the succeeding alteration proportion calculations commencing from one to three as follows: 26.177, 22.576, and 21.696. Thus, three variables containing eigenvalues beyond 1.0 were acknowledged in Table 5 below. The sum of indicators and their loadings in the respective construct was also established. Outcomes provided evidence that, all indicators had loadings beyond 0.5 (Hair *et al.*, 2014).

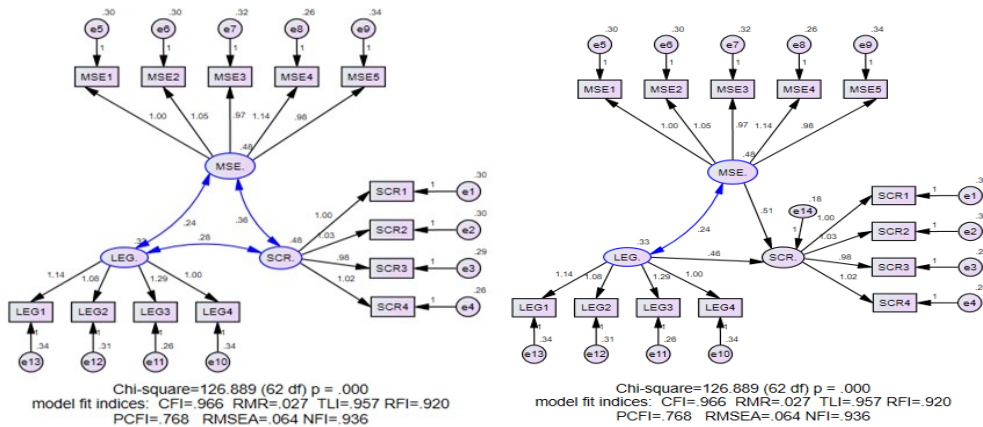
Table 5: Variance Enlightened

Variable	Original Eigenvalues			Extraction Sums of Squared Loadings			Rotation Sums of Squared Loadings		
	Sum	% of Variance	Cumulative %	Total	% of Variance	Cumulative %	Total	% of Variance	Cumulative %
1	6.628	50.981	50.981	6.628	50.981	50.981	3.403	26.177	26.177
2	1.463	11.250	62.231	1.463	11.250	62.231	2.935	22.576	48.753
3	1.068	8.218	70.449	1.068	8.218	70.449	2.821	21.696	70.449

Table 6: Factor Loading

	Component		
	1	2	3
MSE1	.832		
MSE3	.785		
MSE4	.771		
MSE5	.754		
MSE2	.687		
SCR3		.805	
SCR4		.775	
SCR2		.744	
SCR1		.731	
LEG1			.790
LEG4			.766
LEG3			.760
LEG2			.759

The following fit indices together with their tolerable limits were engaged to substantiate the articulated representations; - $CMIN/DF(X^2/df) \leq 3$, $RMR \leq .08$, $GFI \geq .90$, $CFI \geq .90$, $NFI \geq .90$, $TLI \geq .90$, $RFI \geq .90$, $PCFI \geq .50$, $RMSEA \leq .08$. Whole dimension prototype was established at first and the entire fit indices were contained within the acceptable limit (Figure 1). Fundamental exemplary at that juncture was developed to confirm indices limits underscored at the commencement (Figure 2).



Supplementary outcomes uncovered that: - each notch augmentation in MSE, triggered SCR to increase by .738. The escalation was revealed to be sizeable at a 1% level ($p < .001$) as presented in Table 7. Adjusting for LEG in all notch intensification of MSE triggered SCR to upsurge by .506 as pointed out in Table 8. As a result, the scholar had an arithmetic confirmation to castoff the null supposition and submit that - MSE required an enthusiastic and sizeable outcome

on SCR. The outcomes suggest that engagement of market stakeholders in each supply chain stage of the product can minimize unnecessary disruptions. This practice might enhance the products' supply chain resilience.

Table 7: Effect of MSE on SCR in the absence of a Mediator

	Unstandardized Estimate	Standardized Estimates	S.E.	C.R.	P	Label
SCR <--- MSE.	.728	.738	.074	9.835	<0.001	par_7

Mediation scrutiny rationale was later conducted, and its fallouts were exposed in Table 8. Straight consequence among the entire research constructs remained enthusiastic and considerable at 1% level ($p < .001$). Adjusting for MSE in each notch escalation of LEG triggered SCR to escalate by .379, the escalation was significant in number at 1% level. Likewise, each notch upsurge in MSE made LEG to upsurge substantially by .610. Lastly, adjusting for LEG triggered the consequence of MSE on SCR to diminish and continued to be substantial. The result suggests partial mediation influence and suggests the need to engage both the market and other legitimate institutions in designing any product's supply chain. This practice might minimize disruptions, which in one way compromises the resilience.

Table 8: Mediating effect of LEG on the association between MES and SCR

	Unstandardized Estimate	Standardized Estimates	S.E.	C.R.	P	Label
LEG. <--- MSE.	.507	.610	.065	7.816	<0.001	par_13
SCR. <--- MSE.	.506	.506	.076	6.621	<0.001	par_11
SCR. <--- LEG.	.455	.379	.092	4.947	<0.001	par_12

Results sustained hypothesis number one of this study, whereby market stakeholders' engagement was anticipated to show a useful and historic consequence on supply chain resilience. Therefore, it proposes engagement of market stakeholders in Tanzania cashew nut supply chain decisions as one way of making the chain resilient. Engaging market stakeholders might enhance the quality of the decisions by obtaining real-time information about the market. This practice will assist in avoiding unnecessary disruptions which hinders smooth supply chain of the product. The finding is similar to those testified in the related study by Ergun et al.,2022; Hussain et al.,2023, Yang *et al.*,2022, but conflicting with those described by El-Baz et al.,2023, and Qazi *et al.* (2022), who found the affirmative but inconsequential consequence of market stakeholders' engagement on supply chain resilience.

The consequence of institutional legitimacy on supply chain resilience is proven to be affirmative and statistically substantial, as it was hypothesized in hypothesis number two earlier in this study. This outcome advocates the requirement of all institutions dealing with the cashew nut supply chain in Tanzania to act industrially to obtain legitimacy from their stakeholders. Adhering to the industrial standards is the best way for these institutions to earn legitimacy from different stakeholders and ensure the supply chain resilience of the product. The upshot is steady from those conveyed by; - Bag & Rahman,2023, and Kayikci *et al.*,2022, but conflicting with the fallouts obtained by - Wang & Pan,2022, and Qazi *et al.*,2022, who reported the undesirable and trivial impact of institutional legitimacy on supply chain resilience.

The study lastly realized that institutional legitimacy encompasses a partial intercession consequence on the connotation between market stakeholders' engagement and supply chain resilience. Therefore, for the cashew nut supply chain in Tanzania to be resilient, there is a need to consider the contribution of both market stakeholders and those legitimate institutions dealing with the product. The outcome resembles hypothesis number three of this research and generally infers that; - any business firm that is aspiring to attain supply chain resilience must consider the contribution of both legitimate regulating institutions and engaging market stakeholders on whatever they plan regarding its product supply chain.

5.0 CONCLUSION AND RECOMMENDATIONS

This study scrutinized the consequence of market stakeholder engagement on supply chain resilience once mediated by institutional legitimacy. Outcomes informed that market stakeholders' engagement as well as institutional legitimacy substantially enhance supply chain resilience. Institutional legitimacy is testified to comprehend the partial mediation consequence amid market stakeholders' engagement and supply chain resilience. Mainly, the result suggests that, for business firms to attain resilience of their product supply chain, they equally need to involve both the legitimized regulating institutions and market stakeholders. Therefore, it is high time for the participants of the whole cashew nut supply chain in Tanzania to join hands and overcome any disruptions in the products' supply chain.

The conclusion also suggests the requirement for legislators and cashew nut supply chain-related institutions in Tanzania to engage market stakeholders meritoriously in the industrial policy-making. As long as these stakeholders are working at the grassroots of the industry, they are likely to bring useful information that might minimize disruptions of the products' supply chain. A

complementary study might scrutinize other mediating variables or link findings of this study across dissimilar sectors.

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