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Performance perceptions among food supply chain members

A triadic assessment of the influence of supply chain relationship quality on supply chain performance

Influence of
supply chain
RQ on SCP

1783

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Abstract

Purpose – A good supply chain relationship quality (RQ) is a crucial precursor for any stable exchange relationship which ensures relationship continuity. Although empirical research suggests that strengthening RQ improves supply chain performance (SCP), most studies have focused on dyadic business relationships. To fully understand the relational behaviour of a firm embedded in a supply chain, we need to look beyond the dyad into triads. The purpose of this paper is to investigate how SCP is influenced by RQ in a triadic agribusiness supply chain.

Design/methodology/approach – Evidence is drawn from a quantitative survey of 150 agribusiness firms in the maize supply chain in Uganda. Data were collected in triadic context from 50 direct supply chains each composing of a supplier, focal firm and customer. Multi-group structural



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equations modelling (SEM) was used to assess the differences in perception on the influence of RQ on SCP amongst the supply chain members.

Findings – Results provides empirical support for the positive influence of RQ on SCP. SEM reveals differences in perception between the upstream and downstream and amongst the supply chains members. While focal firms considered conflict, coercive power, commitment and trust to be important; suppliers considered trust, dependency and non-coercive power; and customers considered trust, dependency and coercive power to be important RQ factors affecting SCP.

Practical implications – For agribusiness managers to enhance business performance there is need to cultivate strong and mutual relationship with supply chain members. It is also important to know how to handle conflicts and use of power so as to realise the benefits of supply chain relationships.

Originality/value – The paper is novel in that it assesses SCP in a triadic context in an agribusiness sector from a developing country context. The authors used novel approaches including analysis of a triad, and multiple groups SEM to assess perceptions of each supply chain member's.

Keywords Agribusiness, Supply chain performance, Relationship quality, Multi-group analysis, Structural equations modelling

Paper type Research paper

1. Introduction

The general agreement from previous studies in supply chain management (SCM) is that analysis of practices underpinning supply chain relationships have shifted from dyadic perspectives, where relationships are seen as isolated phenomena to a relationship perspective which emphasises interdependence, connectedness and intimate relations (Gellynck and Molnár, 2009; Mentzer *et al.*, 2001; Molnár *et al.*, 2010). Therefore, a good supply chain relationship quality (RQ) is a crucial precursor for any stable exchange relationship that ensures relationship continuity. Although several studies have analysed the influence of RQ on supply chain performance (SCP) (e.g. Chang *et al.*, 2012; Fynes *et al.*, 2008; Molnár *et al.*, 2010; Nyaga *et al.*, 2010); there still remains some critical gaps in SCM literature that deserve critical attention.

First, most previous studies have focused on business-to-business or business-to-consumer relationships in dyadic settings (Athanasopoulou, 2009; Choi and Wu, 2009; Molnár *et al.*, 2010; Nyaga *et al.*, 2010). Analysing the supply chain at a dyadic level does not bring out the underlying dimensions of a supply chain (Kühne *et al.*, 2013; Mentzer *et al.*, 2001; Molnár *et al.*, 2010; Rungtusanatham *et al.*, 2003; Wu *et al.*, 2010).

Second, most studies used data derived using a focal firm approach. This approach is not devoid of the possibility of inflated empirical relationships, a situation which limits the applicability of the findings at supply chain level (Fynes *et al.*, 2008; Molnár *et al.*, 2010; Narasimhan and Jayaram, 1998; Rungtusanatham *et al.*, 2003; Whipple *et al.*, 2010; Wu *et al.*, 2010). Measuring supply chain level performance is important because: it assists in gauging supply chain member's contribution to SCP; it helps to rationalise the continuation of participation of supply chain members; and it forms the basis for understanding the sharing of joint net benefits amongst supply chain members. Therefore, to fully understand the relational behaviour of a firm embedded in a supply chain, we need to look beyond the dyad and into the triads for answers (Choi and Wu, 2009; Wu *et al.*, 2010).

Third, even though results from classical SCM studies suggest that strengthening RQ improves SCP, empirical evidence from the agribusiness sector is generally lacking (Boniface, 2012). It is against this background that this paper, making use of maize supply chain, focuses on supply chain members' perception of how their supply chain partners contribute to their individual performance as well as to supply chain level performance. We do this by examining a triadic supply chain (consisting of a supplier,

a focal firm and a customer) using a matched triad approach. Specifically, we assessed: SCP implications of RQ; and how the SCP implication of RQ varies amongst the supply chains members.

The remainder of this paper is structured as follows: the next section presents the theoretical perspectives and the constructs, this is followed by a description of the methods used, analysis, and presentation of the results, discussions and conclusions. Finally, the limitations are discussed and directions for future research are given.

2. Theoretical perspectives and hypothesis

This paper explores the influence of RQ on SCP. To facilitate our understanding of this relationship in a triadic context, we apply the social network theory (SNT). SNT suggests that firms strive for closer relationships with other supply chain members when mutual benefits can be achieved. These benefits can be derived from interdependencies or complementarities, or when access to knowledge, resources, markets or technology is sought (Wynstra *et al.*, 2015). Since the 1990s, social capital theory has become an important branch within the SNT (Holma, 2012; Trienekens, 2011). Social capital increases the efficiency of an action and, in the form of high levels of trust, social capital reduces opportunism and costly monitoring processes.

The SNT therefore posits supply chain relationships as a resource that provides mutual performance benefits to supply chain members. Our research proposition suggests that good relationship amongst supply chain members have performance benefits to individual supply chain members as well as the performance of the whole supply chain (Figure 1). The SNT is therefore relevant to this paper and has been successfully applied in previous triadic supply chain studies (Holma, 2012; Peng *et al.*, 2010; Trienekens, 2011; Wuyts *et al.*, 2004). Hence, the application of the SNT will be useful in advancing conceptual and practical understanding of the performance implications of RQ in a triadic context.

2.1 SCP

Extant literature suggests that supply chain relationships create opportunities for firms to experience improved performance (Fynes *et al.*, 2008; Molnár *et al.*, 2010; Wu *et al.*, 2010). We define SCP as the operational measure that improves for each supply chain member, as well as for the whole supply chain, as a result of their participation in a supply chain relationship (Gagalyuk *et al.*, 2013; Molnár *et al.*, 2010; Nyaga *et al.*, 2013; Whipple *et al.*, 2010). The perceived contribution of a supply chain member to SCP was measured using four constructs of efficiency, responsiveness, quality and supply chain balance.

Efficiency is a measure of how well resources are utilised, and include logistic costs and profits (Aramyan *et al.*, 2007; Neely *et al.*, 1995). Logistic cost refers to the operating and opportunity cost items that can be influenced by logistic decisions and integration of management practices and activities throughout the supply chain. Profits refer to the net positive gains from investments or business undertaking.

Responsiveness is a measure of speed/rate of providing the requested products. Responsiveness is measured in terms of lead time and customer complaints

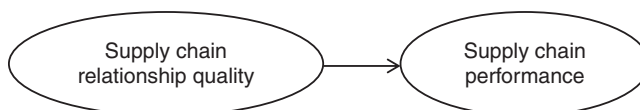


Figure 1.
Conceptual
framework

(Aramyan *et al.*, 2007; Molnár *et al.*, 2010). Lead time is the total amount of time which elapses between sending/getting request and delivery/receiving of goods or services (Gunasekaran *et al.*, 2001). Customer complaints are registered complaints from customers about products or services.

Quality consists of product and process quality. Product quality consists of safety and attractiveness while process quality is measured by environmental friendliness (Aramyan *et al.*, 2007; Chen and Paulraj, 2004; Neely *et al.*, 1995).

Supply chain balance is defined as the distribution of risks and benefits as well as supply chain understanding. Risks and benefits distribution refers to the extent to which business risks and compensations are shared amongst supply chain members. Supply chain understanding refers to the extent to which supply chain members understand each other's products and process, roles and responsibilities (Molnár *et al.*, 2010).

2.2 Supply chain RQ

RQ is the overall assessment of the strength of a relationship and the degree to which the needs and desires of the supply chain members are satisfied, as well as the depth and the atmosphere of an exchange relationship (Crosby *et al.*, 1990; Dwyer *et al.*, 1987; Johnson, 1999; Naudé and Buttle, 2000; Srinivasan *et al.*, 2011; Woo and Ennew, 2004). RQ was measured using seven constructs of trust, commitment, information sharing, coercive and non-coercive power, dependency and conflict.

Trust between supply chain members has been widely suggested as an important indicator of RQ (Gellynck *et al.*, 2007; Kühne *et al.*, 2013; Lu *et al.*, 2008; Molnár *et al.*, 2010). Trust is the supply chain member's belief that another chain member will perform actions that will result in positive outcomes for the supply chain member, as well as not take unexpected actions that would result in negative outcomes for the supply chain member (Anderson and Narus, 1990). Micheels and Gow (2011) argue that trust is often not present in many agricultural supply chains, due to the adversarial nature and short-term orientation of spot-market transactions. Trust has been shown to positively influence SCP (Fynes *et al.*, 2005; Terpend and Ashenbaum, 2012). We therefore hypothesise that:

H1. Trust positively influences SCP.

SCM literature defines commitment as an implicit or explicit pledge of relational continuity between supply chain members (Dwyer *et al.*, 1987). It is the willingness of supply chain members to exert efforts on behalf of the relationship. Committed supply chain members are less likely to exit the relationship than the less committed members and consequently commitment reduces the transaction costs of doing business amongst supply chain members (Cechin *et al.*, 2013). Commitment therefore functions to ensure that future orientation of supply chain members enables them to build relationships that can stand un-foreseen problems (Mohr and Spekman, 1994; Monczka *et al.*, 1998). As an important dimension of RQ, Hennig-Thurau *et al.* (2002) consider commitment as a critical indicator of successful relationship amongst supply chain members. Previous studies (Jap and Ganesan, 2000; Krause *et al.*, 2007; Prahinski and Benton, 2004) have shown that commitment results into improved SCP.

We therefore hypothesise that:

H2. Commitment positively influences SCP.

Information sharing refers to the extent to which critical, often proprietary formal and informal information is shared between supply chain members (Anderson and Narus, 1990; Mohr and Spekman, 1994). Kwon and Suh (2004) argue that information sharing

is essential in a trust building process. This is because sharing of critical information enables firms to develop an understanding of each other's routines and develop mechanisms of conflict resolution, which signals that a supply chain member can be trusted. Frequent and timely information helps to resolve disputes and align expectations and perceptions along the supply chain (Morgan and Hunt, 1994). Consequently, information sharing is critical in ensuring that partners realise the benefits of a collaboration (Min *et al.*, 2005). Previous studies (Baihaqi and Sohal, 2013) have suggested that information sharing positively influences SCP.

We therefore hypothesise that:

H3. Information sharing positively influences SCP.

The use of power has been identified as one of the most important antecedent of SCP (Geyskens *et al.*, 1999). The bases of power can be classified into coercive and non-coercive. Coercive power represents power struggle driven by force. It occurs when a supply chain member's power enables the supply chain member to affect another supply chain member's share of the benefits of collaboration for its own benefits. Non-coercive power increases the value of the relationship through team support and common interests as well as promoting collective goals (Jonsson and Zineldin, 2003). The use of non-coercive power involves rewards and assistances, while the use of coercive power involves punishments (Geyskens and Steenkamp, 2000). As the power hold of a supply chain member over another supply chain member increases, the dependency of the weaker supply chain member increases (Batt, 2004). It is postulated that the use of non-coercive power by a supply chain member should increase SCP. On the other hand, the use of coercive power by a supply chain member should decrease SCP (Zhao *et al.*, 2008).

We therefore hypothesise that:

H4a. Coercive power negatively influences SCP.

H4b. Non-coercive power positively influences SCP.

Dependency is an indicator of the extent to which a supply chain actor depends on his/her supply chain partner (Jonsson and Zineldin, 2003). The dependency as well as the interaction between the supply chain actors is influenced by the atmosphere of the specific environment in which they operate and co-operate. Terpend and Krause (2015) argue that high levels of dependency results in improved SCP. Consequently, we hypothesise that:

H5. Dependency positively influences SCP

Conflict represents the overall level of disagreement in a supply chain relationship. As such conflict is determined by the frequency, intensity and duration of disagreements. Conflict in goals, interests and sharing of benefits can compromise SCP (Weaver, 2009). Conflict has been postulated as an important determinant of SCP (Gailey and Young, 2012; Pearson and Monoky, 1976). Conflict has been postulated to negatively influence SCP (Gailey and Young, 2012). We therefore hypothesis that:

H6. Conflict negatively influences SCP.

3. Methods

3.1 Data collection

Data for this study were collected from the maize supply chain in Uganda between April 2014 and February 2015. A combination of judgemental and snowball sampling techniques was used to identify survey respondents. The inclusion criteria were that

the firm is a micro-small-and-medium-enterprise (MSME) dealing in maize or maize product(s). Focal firms were purposively identified based on their involvement in the maize supply chain as either a processor or a wholesaler; and their willingness to participate in the study was sought before the interviews were conducted. We interviewed business owners or their appointed representatives at their business premises and took between 30 and 40 minutes. During the interviews, each focal firm was asked to identify one of their suppliers and customers. To complete the supply chain, the supplier and the customer nominated by the focal firm were followed up and asked to answer the same questions regarding the focal firm that nominated them.

In this way, a total of 150 valid questionnaires were realised, representing 50 maize supply chains, i.e., 50 suppliers, 50 focal firms and 50 customers. Due to the nature of our sampling method (matched triad approach), and the focus of our study on one supply chain, it is possible that our sample could not represent the entire MSMEs population in Uganda. Therefore our sample size was not selected to represent the underlying MSMEs population. Consequently, generalisation to the entire MSMEs population is not feasible. Similar studies (Kühne *et al.*, 2015; Wu *et al.*, 2010) has shown the difficulties in achieving representativeness using a matched triad approach.

Most (73 per cent) of the responding firms were small enterprises, which have been in business operation for more than five years. These firms were involved in the production, processing and marketing of maize in form of flour, feeds, seeds and grains. However, majority (59 per cent) were involved in marketing of maize as flour. Table I summarises the characteristics of the firms interviewed.

3.2 Measurements and scaling

The survey questionnaire was structured in three sections. The first section examined the supply chain member characteristics. The second section examined the RQ perception of the supply chain members using 22 statements representing seven RQ constructs (trust, commitment, information sharing, coercive power, non-coercive

Categorisation	Supplier	Focal firm	Customer
<i>Business age (years)</i>			
≤ 5	10	12	10
6-10	22	24	32
11-20	62	50	46
> 20	6	14	12
<i>Business size^a</i>			
Micro	32	16	22
Small	68	78	77
Medium	–	6	4
<i>Product type</i>			
Flour	14	82	82
Feeds	50	4	2
Seeds	–	14	12
Grains	36	–	4

Table I.
Respondent profile
(per cent)

Notes: Classification based on number of employees. ^a1-4 = micro, 5-50 = small, > 50 = medium sized enterprises

Source: MTIC (2014)

power, dependence and conflict). The third section assessed the SCP perception of the supply chain members using 11 statements depicting the four SCP constructs (efficiency, quality, responsiveness and chain balance). All items were measured on a five-point Likert scale (1 – strongly disagree, 2 – disagree, 3 – neutral, 4 – agree, 5 – strongly agree).

A matched triad approach was used to collect data. The framework applied was that each supply chain considered had a triplet of supply chain members (supplier, focal firm and customer). For each item considered, each supply chain member was asked to provide a subjective assessment of other supply chain members. Therefore, each focal firm provided item scores on the nominated individual supplier (F_S) and customer (F_C). Similarly, each nominated supplier provided item score on the focal firm (S_F); and each nominated customer provided item scores on the focal firm (C_F). These perspectives are summarised in Figure 2.

4. Analyses

Content validity of the constructs used to measure SCP and RQ was supported by previous literature and pre-tests. After data collection, a number of tests were again performed to assess the validity and reliability of the constructs.

4.1 Exploratory factor analysis (EFA)

Because the constructs were being used in a different context from which they have been developed and tested, we first conducted an EFA with principal component analysis to assess the unidimensionality of the constructs (Narasimhan and Jayaram, 1998; Zhao *et al.*, 2008). The EFA was done without specifying the number of factors. Varimax rotation with Kaiser normalisation was used to clarify on the factors (Janssens *et al.*, 2008). Some measurement items were dropped either due to cross loadings or low factor loadings on the different components in an iterative process. Cronbach's α was then calculated for each factor extracted so as to assess the internal consistency of the extracted components.

For RQ, six factors were extracted with eigenvalues greater than 1.0, explaining 64.89 per cent variations in RQ (Table II). Because of low Cronbach's α value, suggesting poor internal consistency amongst items, we adopted a one-item solution for non-coercive power (Table II). The new RQ constructs generally maintained the original construction except for factor one (trust), which combined the original trust and information sharing items plus one commitment item.

For SCP, EFA yielded a four factor solutions with eigenvalues greater than 1, explaining 60.17 per cent variation in observed SCP construct. Some items were also dropped due to low factor loadings. As was the case for RQ, low Cronbach's α values were also observed for SCP, suggesting poor internal consistency amongst items. Thus, we adopted a one-factor solution for responsiveness and chain balance. The new SCP constructs generally maintained their original dimensions (Table III).

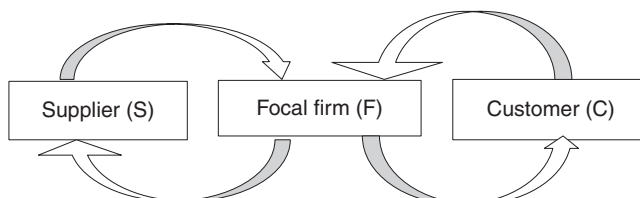


Figure 2.
Relationship
directions considered
in data collection
and analysis

BFJ 118,7	Construct	Factor loading	Eigenvalues	Cronbach's α
	TR		2.83	0.76
	TR1	0.71		
	TR2	0.74		
	TR3	0.53		
1790	CM4	0.62		
	IS1	0.55		
	IS2	0.49		
	IS4	0.61		
	CM		1.94	0.68
	CM1	0.77		
	CM2	0.80		
	CM3	0.65		
	DEP		1.15	
	DEP2	0.92		
	NCP		1.29	0.28
	NCP1	0.67		
	NCP2	0.86		
	CP		2.08	0.91
	CP1	0.91		
	CP2	0.90		
	CON		1.1	
	CON2	0.81		
Table II. Summary of factor analysis for RQ	Notes: KMO = 0.77; Bartlett's tests of sphericity: $\chi^2 = 826.95$; $p = 0.001$			

Construct	Factor loading	Eigenvalues	Cronbach's α	
Efficiency		1.79	0.58	
EFF1	0.81			
EFF2	0.49			
EFF3	0.76			
Quality		1.58	0.52	
RES2	0.53			
QUA1	0.75			
QUA2	0.72			
Responsiveness		1.45	0.45	
RES1	0.68			
RES3	0.78			
Chain balance		1.19	0.24	
BAL1	0.76			
BAL2	0.70			
Table III. Summary of factor analysis for SCP	Notes: KMO = 0.67; Bartlett's tests of sphericity: $\chi^2 = 219.11$; $p = 0.001$			

4.2 Structural equation modelling (SEM)

Based on the results of EFA, we computed summative scores for each of the SCP constructs (efficiency, quality, responsiveness, supply chain balance) and for each of the RQ constructs (trust, commitment, coercive power, non-coercive power, dependency and conflict). The summative scores were calculated as the means of total item scores for each construct. This was done so as to assess how each RQ construct (trust, commitment, non-coercive power, coercive power, dependency and conflict) contributes

to the performance (efficiency, quality, responsiveness and supply chain balance). To test our overall hypothesis, three operations were successively performed. First, the summative scores of trust, commitment, non-coercive power, coercive power, dependency and conflict were aggregated. This was followed by dividing the aggregate figure by six to generate the aggregate for RQ. Finally, the aggregate of the summative scores of efficiency, quality, responsiveness and chain balance was divided by four to generate the aggregate scores for SCP.

The second stage of analyses was to generate the standardised path estimates of the structural models. We did this by analysing data from five perspectives (pooled, F_S, F_C, C_F, S_F) using multi-group SEM in AMOS 22. The multi-group SEM was used to ascertain whether the specified paths in the causal structure were equivalent across the different chain members as well as on the upstream and downstream of the supply chain, hence allowing for group comparison (Deng and Yuan, 2015). A structural model was built based on the modified measurement constructs using the maximum likelihood method. The goodness of fit indices for the structural model indicated that the model was acceptable, with $\chi^2 = 24.03$, $df = 10$, $CFI = 0.98$, $RMSEA = 0.06$, $SRMR = 0.005$, which are within acceptable threshold values.

5. Results

Our results provide empirical support for the general hypothesis that RQ has a positive effect on SCP (Table IV).

Specifically, we observed seven significant paths: with trust positively influencing quality and responsiveness; commitment positively influencing responsiveness, coercive power negatively influencing quality; dependency positively influencing efficiency and quality; and conflict negatively influencing responsiveness and positively influencing chain balance (Figure 3). Specifically, our results provide support to *H1, H2, H4-H6*.

To understand whether these relationship perceptions varies amongst supply chain members, as well as on the upstream and downstream of the supply chain, we conducted a multi-group SEM on specific causal paths. Results revealed that there were significant differences in perception between the upstream and downstream of the supply chain as well as amongst the supply chain members (Table V).

On the upstream, while focal firms considered conflict, commitment and coercive power as important factors that influence their performance with respect to their suppliers, suppliers considered trust, dependency and non-coercive power as important factors that influence their performance with respect to focal firm. On the downstream, focal firms considered trust and conflict as important factors determining their performance, while customers considered trust, dependency and coercive power as important in determining their performance. It is clear from these results that there are perceptual differences amongst supply chain members regarding what influences SCP.

Table IV.
General performance
perception amongst
supply chain
members

Parameters	Pooled	Perspectives			
		S_F	F_S	F_C	C_F
Estimates	0.28	0.23	0.14	0.40	0.35
SE	0.12	0.29	0.17	0.18	0.23
CR	4.09***	1.68	0.96	3.10**	2.60**

Notes: **,***Significance at 0.01 and 0.001, respectively

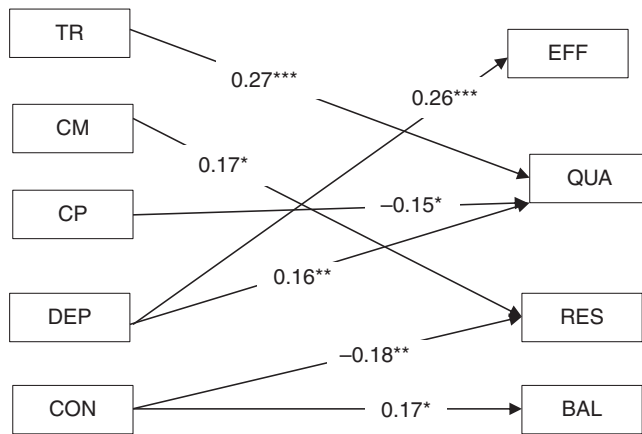


Figure 3.
Standardised path estimates for the pooled sample

Notes: TR, trust; CM, commitment; CP, coercive power; DEP, dependency; CON, conflict; EFF, efficiency; QUA, quality; RES, responsiveness; BAL, chain balance. *, **, ***Significant at 0.05, 0.01 and 0.001, respectively

Paths and perspectives		Estimates	SE	CR	
<i>F_S perspective</i>					
Conflict	→	Quality	-0.29	0.08	-2.21*
Conflict	→	Responsiveness	-0.30	0.14	-2.32*
Conflict	→	Chain balance	0.28	0.17	2.13*
Commitment	→	Responsiveness	0.31	0.36	2.19*
Coercive power	→	Quality	-0.30	0.06	-2.15*
Coercive power	→	Chain balance	0.41	0.14	2.88**
<i>S_F perspective</i>					
Trust	→	Quality	0.57	0.15	4.23***
Trust	→	Responsiveness	0.60	0.16	4.13***
Trust	→	Chain balance	0.39	0.22	2.53**
Dependency	→	Efficiency	0.39	0.09	3.44***
Non-coercive power	→	Efficiency	-0.41	0.11	-3.29**
Non-coercive power	→	Chain balance	-0.31	0.02	-2.36*
<i>F_C perspective</i>					
Trust	→	Quality	0.29	0.12	2.5*
Conflict	→	Chain balance	0.29	0.12	2.24*
<i>C_F perspective</i>					
Trust	→	Quality	0.59	0.11	4.88***
Dependency	→	Quality	0.38	0.06	3.03**
Coercive power	→	Responsiveness	-0.40	0.08	-2.79**

Note: *, **, ***Significant at 0.05, 0.01 and 0.001, respectively

Table V.
Standardised path estimation for sub-group specific estimates

6. Discussions

Measurement of supply chain level performance has recently attracted a lot of interest within SCM literature. This paper contributes to this discussion by looking at the supply chain members' perception of how their relationships with supply chain

partners contribute to their individual performance as well as the performance of the whole chain. We used data from 50 direct supply chains, each composing of a supplier, a focal firm and a customer. This conceptualisation goes beyond the scope of most previous studies that predominantly collected and analysed data from a single supply chain member's perspective using a dyadic approach. The shift in analysis from dyad to triad as well as multiple group SEM, looking at individual supply chain member's perspectives, further add a new dimension to SCM literature. Additional contribution of this paper lies in the fact that it provides insights into SCP from an agribusiness supply chain operating in a developing country context.

As far as measurement of SCP and RQ is concerned, our results provide support to the existing measurement construction approaches. However, we find evidence that the construct for measuring trust includes information sharing. This suggests that sharing of accurate and timely information amongst supply chain members is an indication of trust amongst supply chain members. This result finds support from literature on trust within the agribusiness domain which suggest that trust allows supply chain members to be confident in their interpretation of market information from other supply chain members (e.g. Micheels and Gow, 2011).

Our results from pooled sample analysis show that RQ had a positive and significant effect on SCP. This is in consonant with findings from previous studies (Kühne *et al.*, 2013; Molnár *et al.*, 2010; Schiefer *et al.*, 2009). This suggests that by developing and engaging in good relationships, supply chain members can improve SCP. Therefore while previous studies identified empirical support for the performance implications of RQ using a dyadic framework (Nyaga *et al.*, 2013) our findings extend this fact to agribusiness supply chains in a developing country context using a triadic approach.

As shown in Table V our results suggest that relationships were perceived to be better on the downstream (between the focal firm and customer) than on the upstream (between the supplier and the focal firm). This finding is in contrast with the work of Reynolds *et al.* (2009) which showed that relationship was felt better at the farmer-processor level than the processor-retailer level in the German milk supply chain. This can be explained by the fact in the Ugandan context, the downstream is dominated by formal business, while the upstream is composed mainly of informal businesses as compared to the upstream. Consequently, supply chain members would prefer to do business with well-known and registered supply chain members, hence better business relationships.

Looking at the upstream; trust, commitment, coercive power, non-coercive power, dependency and conflict were the most important RQ attributes that influenced SCP (Table V). While the directions of the path estimates were generally as expected, the influence of conflict and non-coercive power on chain balance was counter intuitive. Focal firms perceived conflict to have a positive effect on chain balance. While SCM literature reduces SCP, this seems not to be the case in agri-business chains. This results finds support in the work of (Molnár *et al.*, 2010) who argue that looking for solutions to critical issues (conflict), should result into a balanced distribution of risks and benefits (chain balance), hence improve performance.

Similarly, focal firms perceived the use of coercive power to positively influence chain balance. The use of coercive power has been generally hypothesised to have a negative effect on SCP (Nyaga *et al.*, 2013; Zhao *et al.*, 2008). However, our results suggest that in agribusiness supply chain set-ups where there are minimal or no formal governance mechanisms (as it is in the maize supply chain), the use of coercive power will result into a balanced distribution of risk and benefits. Though it finds no

support in literature, this suggests that powerful supply chain members can coerce the other supply chain members to conform to required standards and hence improve performance.

From the suppliers' perspectives, trust was the main factor that contributed to improve SCP. This is in line with the results of previous studies which suggest that trust positively influences SCP (e.g. Fynes *et al.*, 2008). On the other hand, the negative influence of non-coercive power on SCP as observed in this study is counter intuitive. Whereas some previous studies such as those of Terpend and Ashenbaum (2012) and Arend and Wisner (2005) suggest that the use of non-coercive power leads to better networking hence improved SCP, others performed by Kühne *et al.* (2013) show that the use of non-coercive power was associated with decreased SCP in the European traditional food chains. Considering that all these studies used different supply chain types, it becomes very apparent that the use of rewards as a means of ensuring conformance to expectations amongst supply chain members would depend on the nature and type of supply chain. Our results therefor provide support to arguments by Kühne *et al.* (2013) that the use of non-coercive power tend to have negative influence on SCP.

On the downstream there is clear evidence that trust positively influences SCP, particularly in terms of quality (Table V). This is not surprising because previous empirical research in agribusiness supply chains have shown that trust is very important in ensuring quality of the products (Kühne *et al.*, 2013; Lindgreen *et al.*, 2008; Molnár *et al.*, 2010). Similar to the upstream, focal firms perceived the presence of conflict with their customers to result into improve chain balance. For customer's, trust, dependency and coercive power were the significant RQ attributes that influenced SCP. Of particular interest is the positive and significant influence of dependency to the performance of suppliers and customers. This suggests the exercise of power-dependence between focal firms and their customers. A higher dependence is equivalent to being promised an increased reward, as such this will increase the motivation to perform well so as to receive the reward and secure the motivation in the long run (Terpend and Krause, 2015).

7. Conclusions

With evidence from an agribusiness supply chain in a developing country, our study provides evidence that relationships are bi-directional in nature. Our results underscore the importance of RQ in SCP by showing that better RQ leads to improved SCP. Consequently, the paper therefore contributes to knowledge by providing empirical evidence on the role of RQ in influencing SCP in agribusiness SMEs from a developing country context. The paper also provides empirical insights into SCP perception differences amongst supply chain members. For instance, while focal firms perceived the existence of conflict and coercive power to significantly influence their individual performance with respect to the supplier, suppliers perceive that trust and non-coercive power are important when dealing with their focal firms. We also show that these perception differences are not only amongst supply chain actors, but also vary between the upstream and downstream of the chain.

Methodologically, our results offer support to the use of a triadic approach and multi-group SEM procedure in supply chain analysis in the agribusiness sector. Our methodology incorporates novel approaches such analysis of a triad, and multiple group SEM to assess perceptions of each supply chain member's perspectives.

The main managerial implication arising from this paper is that managers of agribusiness need to cultivate strong and mutual relationship with supply chain

members in order to enhance SCP. In particular, managers should have in place innovative mechanisms to amicably handle conflicts with supply chain members. This is especially so in situations where formal governing mechanisms are absent as observed in this study. The influence of dependency SCP suggests that powerful chain members should use their power effectively so as to leverage benefits to themselves as well as to the other supply chain members.

8. Limitations and future research

This study focused on only one agribusiness supply chain in one country-Uganda. Therefore, the findings can only be taken as a first indicator of the SCP in the Ugandan context. Consequently, generalisation of these results to the entire MSMEs population should be done cautiously. Future studies should confirm these results using datasets covering more than one agribusiness supply chain. Such studies could compare differences in RQ perception amongst different supply chains. Additionally, this study did not consider the different typologies of transaction (e.g. contracts, spot market) along the supply chain. This dimension if taken into consideration in future studies could provide some insights into whether the nature of relationships amongst supply chain members varies depending on the nature of transaction. Whereas our results highlight the significant role RQ on improving SCP, our sample size was small. Consequently, these results deserve further considerations in similar contexts using a larger sample size.

References

- Anderson, J.C. and Narus, J.A. (1990), "A model of distributor firm and manufacturer firm working partnerships", *The Journal of Marketing*, pp. 42-58.
- Aramyan, L.H., Lansink, A.G.O., Van Der Vorst, J.G. and Van Kooten, O. (2007), "Performance measurement in agri-food supply chains: a case study", *Supply Chain Management: An International Journal*, Vol. 12 No. 4, pp. 304-315.
- Arend, R.J. and Wisner, J.D. (2005), "Small business and supply chain management: is there a fit?", *Journal of Business Venturing*, Vol. 20 No. 3, pp. 403-436.
- Athanasopoulou, P. (2009), "Relationship quality: a critical literature review and research agenda", *European Journal of Marketing*, Vol. 43 Nos 5/6, pp. 583-610.
- Baihaqi, I. and Sohal, A.S. (2013), "The impact of information sharing in supply chains on organisational performance: an empirical study", *Production Planning & Control*, Vol. 24 Nos 8/9, pp. 743-758. doi: 10.1080/09537287.2012.666865.
- Batt, P.J. (2004), "Incorporating measures of satisfaction, trust and power-dependence into an analysis of agribusiness supply chains", *Agriproduct Supply-Chain Management in Developing Countries*, pp. 27-43.
- Boniface, B. (2012), "Producer relationships segmentation in Malaysia's milk supply chains", *British Food Journal*, Vol. 114 No. 10, pp. 1501-1516.
- Cechin, A., Bijman, J., Pascucci, S. and Omta, O. (2013), "Decomposing the member relationship in agricultural cooperatives: implications for commitment", *Agribusiness*, Vol. 29 No. 1, pp. 39-61.
- Chang, M.-L., Cheng, C.-F. and Wu, W.-Y. (2012), "How buyer-seller relationship quality influences adaptation and innovation by foreign MNCs' subsidiaries", *Industrial Marketing Management*, Vol. 41 No. 7, pp. 1047-1057, available at: <http://dx.doi.org/10.1016/j.indmarman.2012.02.005>
- Chen, I.J. and Paulraj, A. (2004), "Towards a theory of supply chain management: the constructs and measurements", *Journal of Operations Management*, Vol. 22 No. 2, pp. 119-150.

- Choi, T.Y. and Wu, Z. (2009), "Triads in supply networks: theorizing buyer-supplier-supplier relationships", *Journal of Supply Chain Management*, Vol. 45 No. 1, pp. 8-25.
- Crosby, L.A., Evans, K.R. and Cowles, D. (1990), "Relationship quality in services selling: an interpersonal influence perspective", *The Journal of Marketing*, pp. 68-81.
- Deng, L. and Yuan, K.-H. (2015), "Multiple-group analysis for structural equation modeling with dependent samples", *Structural Equation Modeling: A Multidisciplinary Journal*, Vol. 22 No. 4, pp. 552-567.
- Dwyer, F.R., Schurr, P.H. and Oh, S. (1987), "Developing buyer-seller relationships", *The Journal of Marketing*, pp. 11-27.
- Fynes, B., de Búrca, S. and Mangan, J. (2008), "The effect of relationship characteristics on relationship quality and performance", *International Journal of Production Economics*, Vol. 111 No. 1, pp. 56-69, available at: <http://dx.doi.org/10.1016/j.ijpe.2006.11.019>
- Fynes, B., Voss, C. and de Burca, S. (2005), "The impact of supply chain relationship quality on quality performance", *International Journal of Production Economics*, Vol. 96 No. 3, pp. 339-354. doi: 10.1016/j.ijpe.2004.05.008.
- Gagalyuk, T., Hanf, J. and Hingley, M. (2013), "Firm and whole chain success: network management in the Ukrainian food industry", *Journal on Chain and Network Science*, Vol. 13 No. 1, pp. 47-70.
- Gailey, E.D. and Young, J.A. (2012), "An examination of marketing channel conflict and cooperation in the motorsports industry", *Journal of Marketing Channels*, Vol. 19 No. 3, pp. 212-228.
- Gellynck, X. and Molnár, A. (2009), "Chain governance structures: the European traditional food sector", *British Food Journal*, Vol. 111 No. 8, pp. 762-775.
- Gellynck, X., Vermeire, B. and Viaene, J. (2007), "Innovation in food firms: contribution of regional networks within the international business context", *Entrepreneurship & Regional Development*, Vol. 19 No. 3, pp. 209-226.
- Geyskens, I. and Steenkamp, J.-B.E. (2000), "Economic and social satisfaction: measurement and relevance to marketing channel relationships", *Journal of Retailing*, Vol. 76 No. 1, pp. 11-32.
- Geyskens, I., Steenkamp, J.-B.E. and Kumar, N. (1999), "A meta-analysis of satisfaction in marketing channel relationships", *Journal of Marketing Research*, pp. 223-238.
- Gunasekaran, A., Patel, C. and Tirtiroglu, E. (2001), "Performance measures and metrics in a supply chain environment", *International Journal of Operations & Production Management*, Vol. 21 Nos 1/2, pp. 71-87.
- Hennig-Thurau, T., Gwinner, K.P. and Gremler, D.D. (2002), "Understanding relationship marketing outcomes: an integration of relational benefits and relationship quality", *Journal of Service Research*, Vol. 4 No. 3, pp. 230-247.
- Holma, A.-M. (2012), "Interpersonal interaction in business triads – case studies in corporate travel purchasing", *Journal of Purchasing and Supply Management*, Vol. 18 No. 2, pp. 101-112.
- Janssens, W., Wijnen, K., De Pelsmacker, P. and Van Kenhove, P. (2008), *Marketing Research with SPSS*, Pearson Education, Harlow.
- Jap, S.D. and Ganesan, S. (2000), "Control mechanisms and the relationship life cycle: implications for safeguarding specific investments and developing commitment", *Journal of Marketing Research*, Vol. 37 No. 2, pp. 227-245.
- Johnson, J.L. (1999), "Strategic integration in industrial distribution channels: managing the interfirm relationship as a strategic asset", *Journal of the Academy of Marketing Science*, Vol. 27 No. 1, pp. 4-18.
- Jonsson, P. and Zineldin, M. (2003), "Achieving high satisfaction in supplier-dealer working relationships", *Supply Chain Management: An International Journal*, Vol. 8 No. 3, pp. 224-240.

- Krause, D.R., Handfield, R.B. and Tyler, B.B. (2007), "The relationships between supplier development, commitment, social capital accumulation and performance improvement", *Journal of Operations Management*, Vol. 25 No. 2, pp. 528-545.
- Kühne, B., Gellynck, X. and Weaver, R.D. (2013), "The influence of relationship quality on the innovation capacity in traditional food chains", *Supply Chain Management: An International Journal*, Vol. 18 No. 1, pp. 52-65.
- Kühne, B., Gellynck, X. and Weaver, R.D. (2015), "Enhancing innovation capacity through vertical, horizontal, and third-party networks for traditional foods", *Agribusiness*, Vol. 31 No. 3, pp. 294-313. doi: 10.1002/agr.21408.
- Kwon, I.W.G. and Suh, T. (2004), "Factors affecting the level of trust and commitment in supply chain relationships", *Journal of Supply Chain Management*, Vol. 40 No. 1, pp. 4-14.
- Lindgreen, A., Hingley, M., Trienekens, J., Kottila, M.-R. and Rönni, P. (2008), "Collaboration and trust in two organic food chains", *British Food Journal*, Vol. 110 Nos 4/5, pp. 376-394.
- Lu, H., Feng, S., Trienekens, J.H. and Omta, S.W.F. (2008), "Performance in vegetable supply chains: the role of Guanxi networks and buyer-seller relationships", *Agribusiness*, Vol. 24 No. 2, pp. 253-274. doi: 10.1002/agr.20158.
- Mentzer, J.T., DeWitt, W., Keebler, J.S., Min, S., Nix, N.W., Smith, C.D. and Zacharia, Z.G. (2001), "Defining supply chain management", *Journal of Business Logistics*, Vol. 22 No. 2, pp. 1-25.
- Micheels, E.T. and Gow, H.R. (2011), "The moderating effects of trust and commitment on market orientation, value discipline clarity, and firm performance", *Agribusiness*, Vol. 27 No. 3, pp. 360-378.
- Min, S., Roath, A.S., Daugherty, P.J., Genchev, S.E., Chen, H., Arndt, A.D. and Richey, R.G. (2005), "Supply chain collaboration: what's happening?", *International Journal of Logistics Management*, Vol. 16 No. 2, pp. 237-256.
- Mohr, J. and Spekman, R. (1994), "Characteristics of partnership success: partnership attributes, communication behavior, and conflict resolution techniques", *Strategic Management Journal*, Vol. 15 No. 2, pp. 135-152.
- Molnár, A., Gellynck, X. and Weaver, R.D. (2010), "Chain member perception of chain performance: the role of relationship quality", *Journal on Chain and Network Science*, Vol. 10 No. 1, pp. 27-49.
- Monczka, R.M., Petersen, K.J., Handfield, R.B. and Ragatz, G.L. (1998), "Success factors in strategic supplier alliances: the buying company perspective*", *Decision Sciences*, Vol. 29 No. 3, pp. 553-577.
- Morgan, R.M. and Hunt, S.D. (1994), "The commitment-trust theory of relationship marketing", *The Journal of Marketing*, pp. 20-38.
- MTIC (2014), *Uganda Micro, Small and Medium Enterprise (MSME) Policy*, Government of Uganda, Kampala.
- Narasimhan, R. and Jayaram, J. (1998), "Causal linkages in supply chain management: an exploratory study of North American manufacturing firms", *Decision Sciences*, Vol. 29 No. 3, pp. 579-605.
- Naudé, P. and Buttle, F. (2000), "Assessing relationship quality", *Industrial Marketing Management*, Vol. 29 No. 4, pp. 351-361.
- Neely, A., Gregory, M. and Platts, K. (1995), "Performance measurement system design: a literature review and research agenda", *International Journal of Operations & Production Management*, Vol. 15 No. 4, pp. 80-116.
- Nyaga, G.N., Whipple, J.M. and Lynch, D.F. (2010), "Examining supply chain relationships: do buyer and supplier perspectives on collaborative relationships differ?", *Journal of Operations Management*, Vol. 28 No. 2, pp. 101-114.

- Nyaga, G.N., Lynch, D.F., Marshall, D. and Ambrose, E. (2013), "Power asymmetry, adaptation and collaboration in dyadic relationships involving a powerful partner", *Journal of Supply Chain Management*, Vol. 49 No. 3, pp. 42-65.
- Pearson, M. and Monoky, J.F. (1976), "The role of conflict and cooperation in channel performance", paper presented at the Proceedings of American Marketing Association, Vol. 42, pp. 240-244.
- Peng, T.-J.A., Lin, N.-J., Martinez, V. and Yu, C.-M.J. (2010), "Managing triads in a military avionics service maintenance network in Taiwan", *International Journal of Operations & Production Management*, Vol. 30 No. 4, pp. 398-422.
- Prahinski, C. and Benton, W. (2004), "Supplier evaluations: communication strategies to improve supplier performance", *Journal of Operations Management*, Vol. 22 No. 1, pp. 39-62.
- Reynolds, N., Fischer, C. and Hartmann, M. (2009), "Determinants of sustainable business relationships in selected German agri-food chains", *British Food Journal*, Vol. 111 No. 8, pp. 776-793. doi: 10.1108/00070700910980919.
- Rungtusanatham, M., Salvador, F., Forza, C. and Choi, T.Y. (2003), "Supply-chain linkages and operational performance: a resource-based-view perspective", *International Journal of Operations & Production Management*, Vol. 23 No. 9, pp. 1084-1099.
- Rungtusanatham, M., Choi, T.Y., Hollingworth, D.G., Wu, Z. and Forza, C. (2003), "Survey research in operations management: historical analyses", *Journal of Operations Management*, Vol. 21 No. 4, pp. 475-488.
- Schiefer, G., Fritz, M., Ziggers, G. and Henseler, J. (2009), "Inter-firm network capability: how it affects buyer-supplier performance", *British Food Journal*, Vol. 111 No. 8, pp. 794-810.
- Srinivasan, M., Mukherjee, D. and Gaur, A.S. (2011), "Buyer-supplier partnership quality and supply chain performance: moderating role of risks, and environmental uncertainty", *European Management Journal*, Vol. 29 No. 4, pp. 260-271.
- Terpend, R. and Ashenbaum, B. (2012), "The intersection of power, trust and supplier network size: implications for supplier performance", *Journal of Supply Chain Management*, Vol. 48 No. 3, pp. 52-77.
- Terpend, R. and Krause, D.R. (2015), "Competition or cooperation? Promoting supplier performance with incentives under varying conditions of dependence", *Journal of Supply Chain Management*, Vol. 51 No. 4, pp. 29-53.
- Trienekens, J.H. (2011), "Agricultural value chains in developing countries a framework for analysis", *Supporters and Partners*, Vol. 14 No. 2, pp. 51-82.
- Weaver, R.D. (2009), "Microeconomics of collaboration and network configuration", *British Food Journal*, Vol. 111 No. 8, pp. 746-761.
- Whipple, J.M., Lynch, D.F. and Nyaga, G.N. (2010), "A buyer's perspective on collaborative versus transactional relationships", *Industrial Marketing Management*, Vol. 39 No. 3, pp. 507-518, available at: <http://dx.doi.org/10.1016/j.indmarman.2008.11.008>
- Woo, K.-S. and Ennew, C.T. (2004), "Business-to-business relationship quality: an IMP interaction-based conceptualization and measurement", *European Journal of Marketing*, Vol. 38 Nos 9/10, pp. 1252-1271.
- Wuyts, S., Stremersch, S., Van den Bulte, C. and Franses, P.H. (2004), "Vertical marketing systems for complex products: a triadic perspective", *Journal of Marketing Research*, Vol. 41 No. 4, pp. 479-487.
- Wu, Z., Choi, T.Y. and Rungtusanatham, M.J. (2010), "Supplier-supplier relationships in buyer-supplier-supplier triads: implications for supplier performance", *Journal of Operations Management*, Vol. 28 No. 2, pp. 115-123, available at: <http://dx.doi.org/10.1016/j.jom.2009.09.002>

-
- Wynstra, F., Spring, M. and Schoenherr, T. (2015), "Service triads: a research agenda for buyer-supplier-customer triads in business services", *Journal of Operations Management*, Vol. 35 No. 2015, pp. 1-20, available at: <http://dx.doi.org/10.1016/j.jom.2014.10.002>
- Zhao, X., Huo, B., Flynn, B.B. and Yeung, J.H.Y. (2008), "The impact of power and relationship commitment on the integration between manufacturers and customers in a supply chain", *Journal of Operations Management*, Vol. 26 No. 3, pp. 368-388, available at: <http://dx.doi.org/10.1016/j.jom.2007.08.002>

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