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Abstract

Purpose: This paper examined the role of power on supply chain performance in the context of small and medium sized agribusiness enterprises (SMEs). Contrary to most of previous studies, which collect and analyze data from one side of a relationship dyad using a focal firm approach, a matched triad approach was employed in data collection and analysis in this study.

Methodology: Empirical data was collected from 150 agribusiness supply chain members from the maize supply chain in Uganda. Analysis was done using multi-group analysis and structural equations modelling.

Findings: Results highlights the differences in the perception of power use and how it influences supply chain performance. The differences in perception suggest the existence of power asymmetry amongst supply chain members. This work contributes to the ongoing debate concerning the use of triad as a unit of analysis as opposed to a firm or a dyad.

Limitations: This study only focused on one commodity chain in one country, which can limit the broad application of the findings.

Managerial implications*:* A practical implication of the finding is that managers of agribusiness supply chains should be aware of their power positions and appropriately influence the supply chain based on their relative power positions.

Originality: The novelty of this work lies in fact that we assess perception of power amongst supply chain members in a triadic context, a perspective that has not been adequately tested in agribusiness supply chain management studies before.

Keywords*: Power, Triad, Structural Equations Modelling, Agribusiness SMEs, Supply chain performance*

Type*:* Research Paper

1.0 Introduction

The role of power in supply chains presumes a disproportionate distribution of power amongst supply chain members owing to variations in cost structure, size of the organization capability and nature of contracts (Belaya *et al.*, 2009; He *et al.*, 2013; Cuevas *et al.*, 2015; Lacoste and

Blois, 2015; Rindt and Mouzas, 2015). This implies that supply chain members are interdependent in a complex supply chain structure (Cai *et al.*, 2013; Chicksand, 2015; Odongo *et al.*, 2016). Supply chain management (SCM) literature demonstrates that power is a vital predictor of supply chain performance (SCP) (Molnár *et al.*, 2010; Nyaga *et al.*, 2013), adoption (Liu *et al.*, 2015), innovation capacity (Kühne *et al.*, 2013), and customer integration (Zhao *et al.*, 2008).

However, the role of power relations in supply chains is evolving as firms become more complex and multifaceted. Therefore it is important to understand how power is being used by different supply chain members in order to gain control and share profit and ultimately how it affect the supply chain performances (Nyaga *et al.*, 2013; Rindt and Mouzas, 2015). Especially in the context of small and medium sized enterprises (SMEs), power disparity affect firms collaborative behaviors, either due to opportunism or stronger members taking advantage to appropriate greater value of the relationship (Martin K Hingley, 2005; Nyaga *et al.*, 2013; Lackes *et al.*, 2015). Hence this study seek to investigate the negative and positive effects of power on supply chain performance and how supply chain use and perceive power (SCM) (Belaya *et al.*, 2009; Liu *et al.*, 2015).

Furthermore, there is a limited research on role of power in SCP in the context of SMEs (Adams *et al.*, 2012; Sukwadi *et al.*, 2013). Large organizations are often well equipped and prepared to play the power games in their favor. It is important for the managers in small and medium sized businesses to get a better understanding of the role of power and how to deal with it (Gelinas and Bigras, 2004; Matanda *et al.*, 2016). Additionally, this research has a significant managerial implication in agribusiness sector give that in developing countries such as Uganda are primarily dominated by small businesses (Matanda *et al.*, 2016).

In departure from previous studies, this paper makes three additional contributions to the SCM literature. Firstly, past studies on power in supply chains have focused on its influence on resource allocation (Pulles *et al.*, 2014); power asymmetry (Nyaga *et al.*, 2013); commitment (Zhao *et al.*, 2008); relationship strength (Maloni and Benton, 2000); and performance (Crook and Combs, 2007; Molnár *et al.*, 2010). With a few exceptions such as Molnár *et al.* (2010) and Kühne *et al.* (2013), the majority of these studies collect and analyze data from one side of a relationship dyad using a focal firm approach. Analyzing a supply chain at firm or dyadic levels limits understanding the underlying dynamics of the entire supply chain relationships (Molnár *et al.*, 2010; Wu *et al.*, 2010; Kühne *et al.*, 2013; Touboulic *et al.*, 2014). Consequently, there is a need to look beyond the dyad and into the triad as a unit of analysis.

Secondly, relationships are by nature bi-directional, as such, there will be differences in perceptions and expectations amongst supply members (Molnár *et al.*, 2010; Wu *et al.*, 2010; Nyaga *et al.*, 2013; Pulles *et al.*, 2014; Odongo *et al.*, 2016). Positive outcomes for the whole supply chain will contribute to an individual member's success (Medlin, 2006; Gagalyuk *et al.*, 2013; Petrick *et al.*, 2016). Consequently, focusing on one side of a relationship dyad limits our assessment and understanding of perceptual congruence amongst supply chain members (Erin Anderson and Weitz, 1992; Mentzer *et al.*, 2001; Rungtusanatham *et al.*, 2003). As such, focusing on the triad as a unit of analysis will facilitate our understanding of how supply chain members perceive power use and its influence on performance (Minna Rollins and Schreiner, 2015).

Thirdly, by focusing on agribusiness SMEs in a developing country, this paper departs from most previous studies that focused on large enterprises in developed countries (Sukwadi *et al.*, 2013). Agribusiness SMEs participate in several interlinked supply chains which make

supply chain relationships a critical issues for their success (Park and Krishnan, 2001; Adams *et al.*, 2012; Sukwadi *et al.*, 2013).

Using a triadic approach, this paper examined the perception of power use and its influence on SCP amongst agribusiness SMEs in a developing country context. We hypothesize that the perception of power use and its effects on SCP may not be shared across a relationship triad. The subsequent section presents theoretical perspective and hypothesis guiding the study followed by the methodology, results, discussion and conclusions as well as recommendations drawn from the study.

2. Conceptual framework and hypotheses

This paper uses triadic data collection and analysis to examine a triadic business relationship. Using a triadic approach is appropriate because it enables access to detailed data than would be got using focal firm approach (Minna Rollins and Schreiner, 2015). To facilitate understanding of this triadic power relationships, this study is grounded on the Resource Dependence Theory (RDT). The RDT propagates that firms depend on each other because it is not feasible to be self-sufficient and cost effective (Pfeffer and Salancik, 1978; Belaya and Hanf, 2011; Wynstra *et al.*, 2015). Hence, businesses collaborate to the use each other's resources and enter into a business relationship (Cai *et al.*, 2013; Murthy and Paul, 2016). Furthermore, the extent to which a member is dependent on another member depends on two important factors, i.e., uniqueness of the resource, monopoly over it. Therefore managers in small businesses have to make best possible use of resources, thereof power to operate optimally (Pfeffer and Salancik, 1978). Moreover, perception of supply chain members differs regarding use of power and its influence on SCP (Besser and Miller, 2010). The RDT is therefore relevant in this study and has been used in previous studies to assess power relationships in supply chains (Fynes *et al.*, 2005; Adams *et al.*, 2012; Sanfiel-Fumero *et al.*, 2012; Cai *et al.*, 2013; Chicksand, 2015; Liu *et al.*, 2015). The application of the RDT

in this study is therefore relevant and important in advancing the conceptual and practical understanding of the role of power in influencing SCP in triadic agribusiness SMEs.

2.1 Supply chain performance (SCP)

We define SCP as the operational measures that improve for each member, as well as for the whole chain as result of participation in a supply chain relationship (Arzu Akyuz and Erman Erkan, 2010; Molnár *et al.*, 2010; Whipple *et al.*, 2010; Gagalyuk *et al.*, 2013). Previous studies have established that collaborative relationships are associated with improved SCP in terms of cost reduction, increased fill rate, reduced inventory, and improved quality (Molnár *et al.*, 2010; Nyaga *et al.*, 2010; Thomas *et al.*, 2011). Further, the supply chain members requires a positive evaluation of the performance outcomes of a relationship in order to justify continued involvement in collaborative activities (Wang *et al.* (2010).

Even though collaborative behaviors result in mutual gains, it is important to stress here that these potential gains may not be equally shared among supply chain members. Previous studies provide evidence of perceptual differences amongst supply chain members with regard to the nature of relationships and SCP (Molnár *et al.*, 2010; Whipple *et al.*, 2010; Kühne *et al.*, 2013; Nyaga *et al.*, 2013). (Erin Anderson and Weitz, 1992) showed that perceptual differences can negatively affect the relationships among chain members and results dissatisfaction and conflict. Similarly, while buyers and suppliers both benefited from collaborations, suppliers had a greater feeling of inequality (Corsten and Kumar (2005). Moreover, supply chain members are likely to possess different sources of power, which can be used to create a certain level of stability or deterrence (Nyaga *et al.*, 2013).

This study pre-supposes that suppliers, focal firms and customers differ in their perception of power and its effect on SCP. SCP is measured in terms of efficiency, responsiveness, quality and chain balance. Efficiency is the best use of available resources

which include measures such as logistic costs and profits (Neely *et al.*, 1995; Aramyan *et al.*, 2007). Logistic cost refers to the operating and opportunity cost items that can be influenced by logistic decisions and the integration of management practices and activities throughout the supply chain. Profits are the net positive gains from an investment. Responsiveness is the measure of speed/rate of providing the requested products, hence we considered lead-time and customer complaints (Aramyan *et al.*, 2007; Molnár *et al.*, 2010; Sukwadi *et al.*, 2013). Lead time is the total amount of time which elapses between sending/getting and delivering/receiving goods or services (Gunasekaran *et al.*, 2001). Customer complaint is defined as the formal complaints from customers regarding the product. Product quality means safety and attractiveness while process quality is measured by environmental friendliness (Neely *et al.*, 1995; Chen and Paulraj, 2004; Aramyan *et al.*, 2007). Chain balance is defined as the understanding of distribution of risks and benefits. Risks and benefits distribution refers to the extent to which business risks and compensations are shared amongst supply chain members. Finally, supply chain understanding refers to chain members' understanding of each other's products and processes (Molnár *et al.*, 2010).

2.2 Influence of power on supply chain performance

Power has been recognized as an important antecedent of SCP (Geyskens *et al.*, 1999). Power is the supply chain member's ability to influence the perception, conduct and/or decisions of another (Jonsson and Zineldin, 2003). Research indicates that there is always a power imbalance amongst supply chain members due to the existences of large enterprises with greater power than small ones (Cai *et al.*, 2013; Li *et al.*, 2013; Martin Hingley *et al.*, 2015). Power imbalances usually arise due to differences in expertise, size, dependence, and the nature of contract (Martin K Hingley, 2005; Belaya *et al.*, 2009; Gellynck and Molnár, 2009; Kühne *et al.*, 2013; Li *et al.*, 2013; Jones *et al.*, 2014).

In the context of agribusiness SMEs in Uganda, processors and wholesalers usually have more resources (capital) and better access to market information as compared to their suppliers and customers. This unequal access to resources and information implies that focal firms have a final say on purchasing decisions such as price, quantity, quality amongst others. Consequently, there is more power in with the focal firms (processors and wholesalers) compared to the suppliers and customers. These powerful supply chain members might assume a greater influence and create some stability along the supply chain. Alternatively, powerful supply chain members may use their power advantage at the cost of the weaker members (Belaya *et al.*, 2009; Nyaga *et al.*, 2013; Cuevas *et al.*, 2015; Rindt and Mouzas, 2015). Due to their weak position in the supply chain, the weaker members are most likely to comply with the stronger members for fear of losing business. It is therefore important to understand the nature and effects of power in supply chains in order to provide balanced benefit distributions for all supply chain members (Nyaga *et al.*, 2013).

Power bases examines the potential reasons why one member may hold authority over another. According to French *et al.* (1959), power bases include: *coercive* and *non-coercive* which indicate the ability of the power holder to mediate punishments or dividends; *expert* power which is the perception that one member holds information or expertise which is valued by another; *referent* power, which is one member's desire for identification with another for recognition by association; and *legitimate* power where one member believes in the right of the other member to wield influence. Of these power bases, the coercive and non-coercive dichotomy is the most apparent and widely recognized power bases (Maloni and Benton, 2000; Bastl *et al.*, 2013).

Using the coercive/non-coercive dichotomy, we view power as a mechanism by which one supply chain member induces a desired action of another supply chain member by providing/withholding rewards or punishment. Coercive power occurs when a member's

power permits it to affect another member's share of the benefits of a supply chain relationship. It represents a power struggle driven by force by one supply chain member over another (Skinner *et al.*, 1992). This power struggle may reduce the level of cooperation and performance; and increase the level of conflict and tension in a supply chain relationship hence reduced SCP (Terpend and Ashenbaum, 2012). Past studies has shown that coercive power negatively influences SCP. We therefore hypothesize that:

H1$_a$: *Coercive power negatively affects efficiency*

H1$_b$: *Coercive power negatively affects quality*

H1$_c$: *Coercive power negatively affects responsiveness*

H1$_d$: *Coercive power negatively affects chain balance*

Non-coercive power is based on rewards and the belief that another member is able to administer positive rewards and minimize negative rewards (French *et al.*, 1959). Non-coercive power therefore involves rewards and assistances and increases the value of a relationship through team support, common interests and supporting collective goals (Jonsson and Zineldin, 2003). Previous studies have postulated that non-coercive power has a positive effect on SCP (Zhao *et al.*, 2008; Nyaga *et al.*, 2013), hence, we hypothesize that:

H2a: *Non-coercive power positively affects efficiency*

H2$_b$: *Non-coercive power positively affects quality*

H2c: *Non-coercive power positively affects responsiveness*

H2d: *Non-coercive power positively affects chain balance*

The conceptual framework underpinning the stated hypotheses is presented in figure 1.

Insert figure 1

3. Methods

3.1 The maize supply chain in Uganda

Data for this study was collected from SMEs in the maize supply chain in Uganda. The maize industry is selected for this study because maize is Uganda's most important non-traditional exports and food security commodity. Maize sector provides a source of livelihood to over 3 million households in Ugandan (MFPED, 2016). Much of the maize produced in Uganda is sold to regional markets, especially in Kenya, South Sudan, Malawi, Zambia, and Zimbabwe, (Ahmed, 2012).

In Uganda, maize is marketed through two major channels, namely the grain and flour channels. The grain channel is the major channel for maize trade and handles up to 75% of domestically traded maize and 100% of exported maize. Participants in the grain channel include farmers, traders, commodity brokers and seed companies. According to Dalipagic (2014), participants in the grain channel include rural and urban SMEs, and large-scale traders, with rural SMEs constituting about 90%. The flour channel handles maize which has been processed into maize flour, animal feeds and human food products amongst others. Participants in the flour channel is dominated by maize millers, who constitute 85% of the SMEs in this channel.

3.2 Data collection

Primary data was collected between April 2014 and February 2015. We employed face to face interviews with managers of agribusiness SMEs. A matched triad approach (Kühne *et al.*, 2015) was used in data collection. Using a matched triad approach helped to minimize the chances of sampling bias (Rungtusanatham *et al.*, 2003; Wuyts *et al.*, 2004; Boyer and Swink, 2008). Additionally, the choice of a matched triad approach was done so as to facilitate the subsequent triadic data analysis.

Therefore, each supply chain considered had a triplet of supply chain members (supplier, focal firm, and customer). Data collection always started with the focal firms (FF),

which were purposively identified based on their involvement in the maize supply chain as either a processor or wholesaler. This facilitated the subsequent snowball identification of the supplier (S) and customer (C) by the FF. Each FF was first asked to identify one of their important supplier (S) and customer (C) before being asked to indicate their subjective assessment with respect to their individually chosen supplier (F_S) and customer (F_C). Similarly, each nominated supplier was requested to provide their subjective assessment with respect to the FF that nominated them (S_F); and each nominated customer was asked to provide their subjective assessment with respect to the FF that nominated them (C_F). To be considered for inclusion, suppliers had to be dealing directly in maize or maize products. Therefore, nominated suppliers who were dealing in services such as transportation or other inputs were left out of the interview process. For customers, the inclusion criteria was that they had to be buying maize or maize product directly from the FF that nominated them. In case of a non-response or a mismatch from one of the nominated C of S, the whole supply chain was dropped from the interview process. These perspectives of data collection are summarized in figure 2.

Insert figure 2

The snowball sampling technique was deemed ideal for the study as little was known about the underlying dimensions of the study population. As such, the ex-ante identification of respondents was not feasible (Molnár *et al.*, 2010). At the end, realized 50 matched triads (150 successful interviews), that is 90% completion rate for the initiated interviews, which is consistent with the snowball method of sampling. The 50 maize supply chains comprised 50 suppliers, 50 focal firms, and 50 customers. Most (73%) of the responding firms were small enterprises, who had been in business operations for more than five years. The majority (59%) was involved in the marketing of maize as flour. The firms were involved in the production, processing and marketing of maize in form of flour, feeds, seeds and grains (Table 1).

Insert Table 1

3.3 Measurements and scaling

We adapted the survey measurement items based on similar past studies conducted on power (Kühne *et al.*, 2013), and SCP (Molnár *et al.*, 2010; Wu *et al.*, 2010; Kühne *et al.*, 2013) (see table 2 for statements used). The first section of the questionnaire assessed the supply chain members' characteristics. The second section examined the perception of power use amongst supply chain members, making use of four statements, representing coercive power and non-coercive power sources. The third section assessed perception of SCP, using 11 statements belonging to the four SCP constructs. All items were measured on a 5-point Likert scale (1-strongly disagree, 2-disagree, 3-neutral, 4-agree, 5-strongly agree).

3.4 Analysis

Data was analyzed in SPSS version 21 and AMOS 22. Since the constructs were being used in Uganda for the first time, we conducted an exploratory factor analysis (EFA) to assess the uni-dimensionality of the scales (Narasimhan and Jayaram, 1998; Zhao *et al.*, 2008). The EFA with principal component analysis (PCA) was done without specifying the number of factors. Varimax rotation with Kaiser Normalization was used to clarify on the number of factors. Some items were dropped because of cross loadings or low loadings on the respective factors. Cronbach alpha was then calculated for each factor extracted to assess the internal consistency of the extracted components (Janssens *et al.*, 2008). For SCP, four factors with Eigen values greater than one were extracted, explaining 60.17% of the variations in SCP. The four factors generally maintained the original dimensions in which SCP was measured. For power, two factors explaining 87% variation in power were extracted (Table 2).

Insert Table 2

The second stage of analysis involved estimating standardized path estimates so as to assess the causal relationships amongst the constructs using structural equations modelling (SEM). Following James C Anderson and Gerbing (1988), we used a two-step approach of testing a measurement and structural model. A measurement model was built based on the two power and four SCP constructs. The fit indices for the measurement model was good with X^2=94.00, p-value=0.005, GFI=0.94, CFI=0.94, RMSEA=0.05; which fall within acceptable limits for a CFA (Hu and Bentler, 1999; Janssens *et al.*, 2008). We then built a structural model based on the measurement model using the maximum likelihood method. The structural model was modified through co-varying the error terms on efficiency with quality, and quality with responsiveness. The modification resulted in a model with good fit indices (X^2=104.04.54, p-value=0.002, GFI=0.93, CFI=0.92, RMSEA=0.05), thus explaining clearly the rationale for the acceptability of the model.

4. Results

For the pooled sample, results show that coercive power negatively and significantly influenced efficiency, quality and chain balance; hence providing support for hypothesis H_{1a}, H_{1b}, H_{1d} (Figure 3). This finding is in agreement with previous studies which suggest that coercive power negatively influences SCP (Sanfiel-Fumero *et al.*, 2012; Terpend and Ashenbaum, 2012; Sheu, 2015). Although positive, the influence of non-coercive power on SCP was not significant and hence H_2 was not supported.

Insert figure 3

Multi-group SEM analysis revealed differences in the perceptions of power use and its influences on SCP amongst supply chain members. On the upstream, suppliers perceived the use of coercive power by the FFs to significantly and negatively influence efficiency and chain balance. FFs perceived the use of coercive power by suppliers to positively and significantly influence responsiveness. This outcome is counter intuitive, as literature suggest

that coercive power negatively influences SCP (Sanfiel-Fumero *et al.*, 2012). This result can however be explained by the informal nature of business operations in the maize supply chain in Uganda. In the absences of formal contracts, supply chain members might be forced to use threats, for example loss of contract, to have partners adhere to desired performance standards such as delivery time and quality standards. Looking at non-coercive power, focal firms perceived the use of non-coercive power to positively influence SCP. This results find support in previous studies such as (Sheu, 2015) which suggests that non-coercive power has a positive effect on SCP. The results with respect to the supplier was however not significant, hence inconclusive. Similar studies by (Kühne *et al.*, 2013) in agri-food chains showed indifference on the influence of non-coercive power on SCP.

On the downstream, FF did not consider the use of coercive power by the customer to significantly affect SCP. Customers on the other hand perceived the use of coercive power by the FF to negatively and significantly influence quality and chain balance (Table 3). The perception of customers on the influence of coercive power on SCP finds support in literature from previous studies such as Sanfiel-Fumero *et al.* (2012) who suggested that coercive power negatively influence SCP. On the other hand, focal firms were indifferent on the influence of non-coercive power on SCP, while customer perceived the use of non-coercive power to negatively influence quality.

Insert Table 3

Concluding, while our pooled sample results generally provided partial support for H_1 (H_{1a}, H_{1b}, H_{1d},), it did not provide support for H_2. For the multi-group analysis, we found partial support for both H_1 and H_2 across the three supply chain members. For $H_{1,}$ there was partial support for H_{1a} (S_F), H_{1b} (C_F), and counter intuitive support for H_{1c} (F_S) and H_{1d} (S_F). For H_2, there was no support for H_{2a}, while there was partial support for H_{2b} (C_F), H_{2c} (S_F) and H_{2d} (S_F). The results for the pooled and multi-group analysis support the

assumption that there are perceptual differences amongst supply chain members on the use of power and its influence on SCP.

5. Discussion

Although most researchers believe that empirical studies on SCP should collect and analyze data from at least three firms in a supply chain (Mentzer *et al.*, 2001; Choi and Wu, 2009; Wu *et al.*, 2010), only a few have attempted to do this empirically. This paper provides insights into perception differences amongst supply chain members in a triadic agribusiness SMEs context. The pooled sample results provide partial support H1 (H_{1a}, H_{1b}, H_{1d}). This is in agreement with previous studies which show that use of coercive power has negative effects on SCP (Sakano and Johnson, 1993; James R Brown *et al.*, 1996; Zhao *et al.*, 2008; Terpend and Ashenbaum, 2012; Nyaga *et al.*, 2013). The results underline the informal environment in which agribusiness SMEs operates in Uganda. Because business relationships are non-contractual and based on trust, exercise of power will only serve to discourage supply chain members from continuing in a business relationship. In practice, if one member perceives that another member is being coercive, it is most likely to retaliate by declining to make specific required adjustments or collaborate in joint relationship activities. The implication is that agribusiness managers need to control their use of coercive power, as it may be counterproductive to their performance in the long run.

The multi-group analysis revealed differences in perception amongst supply chain members on the use of power and its influence SCP. While the perception of suppliers and customers on the use of coercive power is in line with previous studies, there were deviations when it came to the different performance parameters. For suppliers, efficiency and chain balance were significantly influenced by a partners use of coercive power, while for customers, quality and chain balance were critical. For focal firms, the use of coercive power

by the supplier significantly influences responsiveness. This difference in perception reveals that critical SCP parameters vary from one member to another.

Contrary to previous studies (Molnár *et al.*, 2010; Terpend and Ashenbaum, 2012), focal firms perceived the use of coercive power to positively influence performance. This could suggest the existence of power asymmetry amongst agribusiness SMEs. This could be the case where there are few suppliers, supplying maize with specific quality requirements to focal firms. Since only few suppliers can meet these quality requirements, suppliers have the power to choose which FF to sell. Hence suppliers can use this power to leverage benefits for themselves.

Focal firms perceived the use of non-coercive power to have significant positive effects on responsiveness and chain balance. This is in agreement with previous studies (James R. Brown *et al.*, 1995; Nyaga *et al.*, 2013), which reported a positive association between non-coercive power and SCP. This suggests that the use of rewards and incentives is a strong signal from a member that they value that relationship. By implication, supply chain members need to consider providing incentives, such as rewards and bonuses to their partners. Such incentives will make partners feel they are appreciated and can result in a positive view of the relationship. Customers perceived non-coercive power to have a significant negative effect on the quality. This result is counter intuitive. However, it finds support from a study by Kühne *et al.* (2013), who concluded that higher levels of non-coercive power use was associated with low levels of innovation capacity in European traditional food chains.

Comparing the downstream and upstream, our findings suggest that different performance aspects are perceived differently in the two sides of the supply chain. For instance, while responsiveness is an important factor in the upstream, quality is an important factor in the downstream. This actually reflects the actual situation in the maize supply chain in Uganda. In the upstream, there is an need for faster delivery of products so that processing

can be done on time. On the downstream, customers are always demanding for quality product, hence the importance of quality. On the other hand, chain balance appears to be critical in both upstream and downstream. This finding underpins the fact that relationships are bi-directional in nature, as such supply chain members will have differences in perceptions towards business relationships. For agribusiness SME managers, it is essential to understand how their business partners perceive the business relationships. For successful business relationships, focal firms should take effort to understand their relative power positions with respect to both the suppliers and customers (Lacoste and Blois, 2015). This is because high levels of power asymmetry leads to more adversarial relationships, as the more powerful partner will tend to be more assertive in the business relationship (Tretyak and Radaev, 2013). Additionally, a lack of understanding of relative power positions of chain member may lead the supply chain members to build and use wrong strategies towards its business partners. Besides showing the differences and similarities between the upstream and downstream, our results also highlight the importance of business relationships to agribusiness SMEs performance (Adams *et al.*, 2012).

6. Conclusions

Results of this study give justification to the use of triad in studying supply chain relationships. Pooled sample results could not reveal the underlying differences in perception amongst supply chain members; which were clearly brought out when multi-group analysis was conducted. Consequently, a triadic analysis exposes the underlying dimensions of a supply chain better than a dyadic or firm level analysis.

By collecting and analyzing data at the supply chain level, this paper advances the empirical understanding of supply chain relationships. Theoretically, the results of this paper contribute to the ongoing debate in the supply chain management literature that a firm or a

dyad is heavily influenced by the network in which it operates. This research also advances the resource dependence theory, and builds on previous work by testing the role of power in supply chain performance in an agribusiness SMEs context that has received limited attention in literature. It further contributes to theory by empirically testing the model in a developing country in Africa.

Managerial implications

Several implications can be drawn from this research. First, managers of agribusiness SMEs should be aware of their power positions and use appropriate influences based on power positions in a supply chain. Since coercive and non-coercive power have contrasting effects on SCP, it is important that both power source and power target recognize the presence of power and reconcile their supply chain strategy to take into account power influences. For managers, this implies that being open about their power positions with supply chain members can help to improve on the performance of each member as well as the performance of the whole supply chain.

Secondly, SMEs in agribusiness would greatly benefit from trust and relation benefits, this implies that SMEs managers can enhance their positional advantage through realizing a better performance in the supply chain. Building a mutually beneficial relationship is critical, however, that requires a some level of commitment and understanding from all stakeholders. This can be attained by viewing the relationship as an investment wherein a supplier or a customer should be viewed as an extension of the SMEs. It is up to the focal firms to convey this approach to their suppliers and customers.

Thirdly, use of rewards and incentives (non-coercive power) is a strong gesture from a member that they value that relationship. Hence, supply chain members may need to consider providing incentives, such as awards, bonuses or performance incentives to their supply chain

partners. Using incentives make partners feel appreciated and can result into a positive view of the relationship. However, both researchers and managers in agribusiness SMEs should be cautious of the recommendation that use of non-coercive power have a positive effect on the quality. Finally, SMEs in the agribusiness sector need to limit the use of coercive power by investing in the relational variables in order to improve efficiency, chain balance and responsiveness.

Limitations and future research

Some limitations of this study are worth mentioning. Firstly, the study only focused on one commodity chain in one country, which can limit the applicability of our findings. Future studies could assess power perceptions across different commodity chains and countries to understand if there are differences in perceptions. The second limitation arises from the use of the matched triad approach of data collection. While ideal for studying a triad, this approach is difficult to operationalize in the field especially where there is no established database for SMEs. Future studies could replicate similar methodologies where businesses are more formalized.

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List of Table

Table 1: Profile of the sample (%)

Categorization	Supplier	Focal firm	Customer
Business age			
≤ 5 years	10	12	10
6-10 years	22	24	32
11-20 years	62	50	46
>20 years	6	14	12
*Business size**			
Micro	32	16	22
Small	68	78	77
Medium	-	6	4
Product type			
Flour	14	82	82
Feeds	50	4	2
Seeds	-	14	12
Grains	36	-	4

**1-4=micro, 5-50=medium, >50=medium sized enterprises,*

Classification based on number of employees (MTIC, 2014)

Table 2: Exploratory factor analysis for SCP and power

Construct	Factor loading	Eigen values	Cronbach's alpha
Supply chain performance			
Efficiency(EFF)		1.79	0.58
Doing business with this XX helps my company to lower transport costs significantly	0.81		
Doing business with this XX helps my company to maintain acceptable profitability	0.49		
Doing business with this XX helps our company to significantly reduce transaction costs	0.76		
Quality(QUA)		1.58	0.52
Doing business with this XX contributes to reducing customer/consumer complaints	0.53		

Doing business with our XX helps my company to manage product safety	0.75		
Doing business with our XX helps my company to produce more attractive products	0.72		
Responsiveness(RES)		1.45	0.45
Doing business with this XX helps my company to reduce lead time (time from sending/getting the request till reply)	0.68		
Doing business with this XX enable our company to deliver products on time	0.78		
Supply chain balance(BAL)		1.19	0.24
Doing business with this XX contributes to a more balanced distribution of risks and benefits along the chain	0.76		
Doing business with this XX helps my company to better understand other chain members' interests	0.70		
KMO=0.68; Bartlets tests of sphericity: X^2=219.11; p=0.000			
Power			
Coercive power(CP)		*1.04*	*0.97*
We cannot be sure that this XX will not retaliate on our company (e.g. terminate contract, lower prices) when we do not accept their business proposal	0.97		
We cannot be sure that this XX will not neglect our interests (terminate the contract without any notice) even if we fully meet the conditions detailed in the contract with them	0.97		
Non-coercive power (NCP)		*2.07*	*0.97*
Our company receives benefits from this XX when we regularly meet their requirements (e.g. financial support, market information)	0.73		
This XX rewards our company without requiring specific behaviour in return (e.g. financial support, better prices)	0.92		
KMO=0.56; Bartlets tests of sphericity: X^2=118.57; p=0.000			

Note: in the interview process, XX would be replaced with Supplier, customer and Focal firm to represent the F-S, F-C; and C-Fand S-F context respectively.

Table 3: Standardized path estimation for sub-group specific estimates

Paths and perspectives			*Estimates*			
			S-F	*F-S*	*F-C*	*C-F*
Coercive power	→	Efficiency	-0.61***	0.43	0.25	-0.20
Coercive power	→	Quality	0.02	-0.58	-0.20	-0.73***
Coercive power	→	Responsiveness	-0.16	0.22***	0.00	-0.04
Coercive Power	→	Chain balance	-0.07*	0.23	-0.36	-0.55**
Non-coercive power	→	Efficiency	0.22	0.67	0.47	0.06
Non-coercive power	→	Quality	-0.01	-0.24	0.04	-0.45*
Non-coercive power	→	Responsiveness	0.20	0.16*	0.73	0.16
Non-coercive power	→	Chain balance	-0.01	1.16*	0.14	-0.11

Note: *1.*,**,*** indicates significance at 0.05, 0.01 and 0.00 respectively*
2. F=focal firm; S=supplier; C=customer
3. S-F=suppliers perception about the focal firm; F-S=focal firms perception about supplier; F-C=focal firms perception about customer; and C-F=customers perception about focal firm

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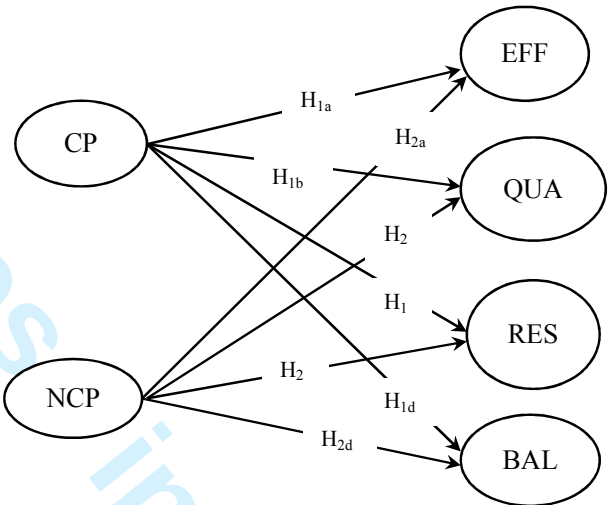

Figure 3: Conceptual framework and hypotheses

CP=coercive power; NCP=non-coercive power; EFF=efficiency; QUA=quality; RES=responsiveness; BAL=chain balance

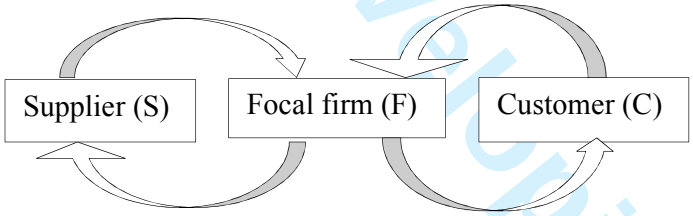

Figure 2: Relationship directions considered in data collection and analysis

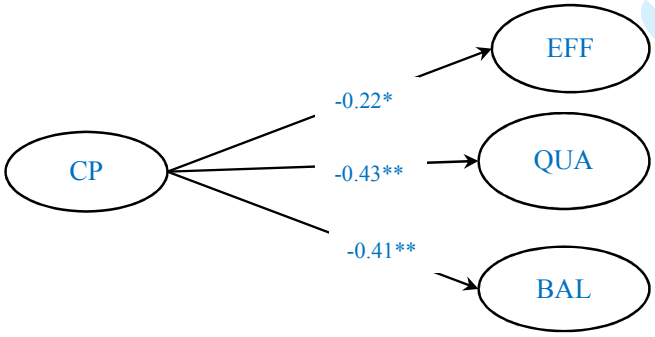

Figure 1: Significant paths for the pooled sample

CP=coercive power; EFF=efficiency; QUA=quality; BAL=chain balance