



Journal of Agribusiness in Developing and Emerging Economies

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Walter Odongo, Manoj Kumar Dora, Adrienn Molnar, Duncan Ongeng, Xavier Gellynck,

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To cite this document:

Walter Odongo, Manoj Kumar Dora, Adrienn Molnar, Duncan Ongeng, Xavier Gellynck, (2017) "Role of power in supply chain performance: evidence from agribusiness SMEs in Uganda", Journal of Agribusiness in Developing and Emerging Economies, Vol. 7 Issue: 3, pp.339-354, <https://doi.org/10.1108/JADEE-09-2016-0066>

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Role of power in supply chain performance: evidence from agribusiness SMEs in Uganda

Role of power
in SCP

339

Walter Odongo

Gulu University Faculty of Agriculture and Environment, Gulu, Uganda

Manoj Kumar Dora and Adrienn Molnar

Department of Agricultural Economics, Ghent University, Ghent, Belgium

Duncan Ongeng

*Department of Food Process and Post Harvest Technology,
Gulu University Faculty of Agriculture and Environment, Gulu, Uganda, and*

Xavier Gellynck

*Department of Agricultural Economics, Faculty of Bio-Engineering,
Ghent University, Ghent, Belgium*

Received 22 September 2016
Revised 26 January 2017
Accepted 3 March 2017

Abstract

Purpose – The purpose of this paper is to examine the role of power on supply chain performance (SCP) 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.

Design/methodology/approach – 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 modeling.

Findings – Results highlight the differences in the perception of power use and how it influences SCP. 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.

Research limitations/implications – This study only focused on one commodity chain in one country, which can limit the broad application of the findings.

Originality/value – The novelty of this work lies in fact that the authors 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, Supply chain performance, Agribusiness SMEs, Structural equations modeling, Triad

Paper type Research paper

1. 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 SCPs (Nyaga *et al.*, 2013; Rindt and Mouzas, 2015). Especially in the context



Journal of Agribusiness in
Developing and Emerging
Economies
Vol. 7 No. 3, 2017
pp. 339-354

© Emerald Publishing Limited
2044-0839
DOI 10.1108/JADEE-09-2016-0066

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 (Hingley, 2005; Nyaga *et al.*, 2013; Lackes *et al.*, 2015). Hence this study seek to investigate the negative and positive effects of power on SCP and how supply chain use and perceive power (SCM) (Belaya *et al.*, 2009; Liu *et al.*, 2015).

Furthermore, there is limited research on the 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 given that in developing countries such as Uganda, it is primarily dominated by small businesses (Matanda *et al.*, 2016).

In departure from previous studies, this paper makes three additional contributions to the SCM literature. First, 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 the focal firm (FF) 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.

Second, 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 members' success as well as the success of the entire supply chain (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 (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).

Third, 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 was deemed appropriate because it enables access to detailed data than would be got using focal firm (FF) approach (Minna Rollins and Schreiner, 2015). To facilitate understanding of this triadic power relationship, 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 at the same time (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, 2017). 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 their 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 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, supply chain members require 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 are expected to result in mutual gains, it is important to stress here that these potential gains may not be equally shared amongst 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). Anderson and Weitz(1992) showed that perceptual differences can negatively affect the relationships amongst chain members and result into dissatisfaction and conflict. Similarly, Corsten and Kumar (2005) observed that 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. Supply chain performance 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 SCP

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; Hingley *et al.*, 2015). Power imbalances usually arise due to differences in expertise, size, dependence, and the nature of contract (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 these focal firms have a final say on purchasing decisions such as price, quantity, quality amongst others. Consequently, there is more power 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 examine 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 have shown that coercive power negatively influences SCP. We therefore hypothesize that:

H1a. Coercive power negatively affects efficiency.

H1b. Coercive power negatively affects quality.

H1c. Coercive power negatively affects responsiveness.

H1d. 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 assistance 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.
- H2b.* Non-coercive power positively affects quality.
- H2c.* Non-coercive power positively affects responsiveness.
- H2d.* Non-coercive power positively affects chain balance.

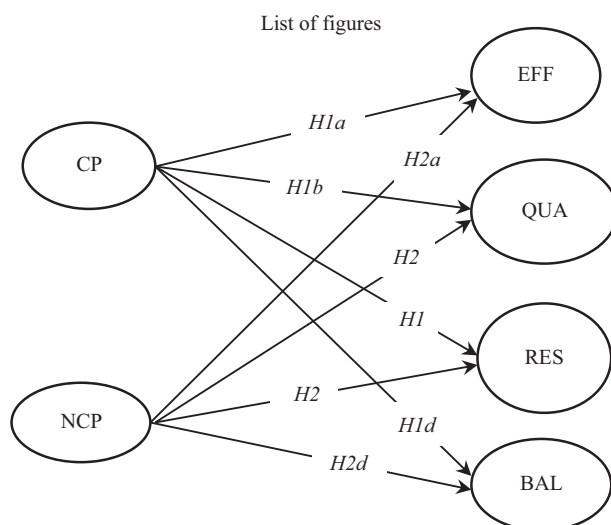
The conceptual framework underpinning the stated hypotheses is presented in Figure 1.

3. Methods

3.1 The maize supply chain in Uganda

Data for this study were 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 three 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 percent of domestically traded maize and 100 percent of exported maize. Participants in the grain channel include farmers, traders, and commodity brokers and seed companies. According to Dalipagicand and Elepu (2014), participants in the grain channel include rural and urban SMEs, and large-scale traders, with rural SMEs constituting about 90 percent. 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 are dominated by maize millers, who constitute 85 percent of the SMEs in this channel.



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

Figure 1.
Conceptual framework
and hypotheses

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 using a matched triad approach was 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, 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 focal firm (FF). Each focal firm 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 focal firm that nominated them (S_F); and each nominated customer was asked to provide their subjective assessment with respect to the focal firm 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 were that they had to be buying maize or maize product directly from the focal firm that nominated them. In case of a non-response or a mismatch from one of the nominated customer C or S supplier, the whole supply chain was dropped from the interview process. These perspectives of data collection are summarized in 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 (suppliers and customers of the focal firm) was not feasible (Molnár *et al.*, 2010). At the end, we realized 50 matched triads (150 successful interviews), that is 90 percent completion rate for the initiated interviews, which is consistent with the snowball method of sampling. The 50 maize supply chains comprised 50 suppliers, 50 FFs, and 50 customers. Most (73 percent) of the responding firms were small enterprises, who had been in business operations for more than five years. The majority (59 percent) 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 I).

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 II for statements used). The first section of the questionnaire assessed the supply chain members' characteristics. The second section examined the perception of power use

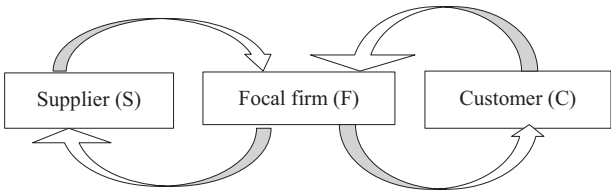


Figure 2.
Relationship directions
considered in data
collection and analysis

Categorization	Supplier	Focal firm	Customer
<i>Business age</i>			
≤5 years	10	12	10
6-10 years	22	24	32
11-20 years	62	50	46
> 20 years	6	14	12
<i>Business size*</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

Notes: *1-4, micro, 5-50 = medium, > 50, medium sized enterprises, Classification based on number of employees (MTIC (2014))

Table I.
Profile of the
sample (%)

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 five-point Likert scale (1-strongly disagree, 2-disagree, 3-neutral, 4-agree, 5-strongly agree).

3.4 Analysis

Data were 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 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 α 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 percent of the variations in SCP. The four factors generally maintained the original dimensions in which SCP was measured. For power, two factors (coercive power and non-coercive power) explaining 87 percent variation in power were extracted (Table II).

The second stage of analysis involved estimating standardized path estimates so as to assess the causal relationships amongst the constructs using structural equations modeling (SEM). Following 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 $\chi^2 = 94.00$, 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 ($\chi^2 = 104.0454$, p -value = 0.002, GFI = 0.93, CFI = 0.92, RMSEA = 0.05), thus explaining clearly the rationale for the acceptability of the model.

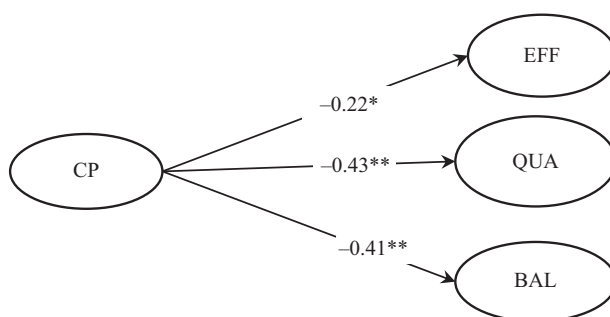
Table II.
Exploratory factor
analysis for SCP
and power

Construct	Factor loading	Eigenvalues	Cronbach's α
<i>Supply chain performance</i>			
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: $\chi^2 = 219.11$; $p = 0.000$			
<i>Power</i>			
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 behavior in return (e.g. financial support, better prices)	0.92		
KMO = 0.56; Bartlets tests of sphericity: $\chi^2 = 118.57$; $p = 0.000$			
Notes: in the interview process, XX would be replaced with Supplier, customer and Focal firm to represent the F-S, F-C; and C-F and S-F context, respectively			

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 *H1a*, *H1b*, *H1d* (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 *H2* was not supported.

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 focal firms to significantly and negatively influence efficiency



Notes: CP, coercive power; EFF, efficiency; QUA, quality; BAL, chain balance. *, **Significant at 0.1 and 0.05 levels, respectively

Figure 3.
Significant paths for
the pooled sample

and chain balance. Focal firms perceived the use of coercive power by suppliers to positively and significantly influence responsiveness. This outcome is counter intuitive, as literature suggests 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. These 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, focal firms 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 focal firm to negatively and significantly influence quality and chain balance (Table III). 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, FFs were indifferent on the influence of non-coercive power on SCP, while customer perceived the use of non-coercive power to negatively influence quality.

Paths and perspectives	S-F	Estimates		
		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

Notes: F, focal firm; S, supplier; C, customer 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. *, **, ***Significant at 0.1, 0.05 and 0.01, respectively

Table III.
Standardized path
estimation for
sub-group specific
estimates

Concluding, while our pooled sample results generally provided partial support for *H1* (*H1a*, *H1b*, *H1d*), it did not provide support for *H2*. For the multi-group analysis, we found partial support for both *H1* and *H2* across the three supply chain members. For *H1*, there was partial support for *H1a*, *d* (S_F), *H1b*, *d* (C_F), and counter intuitive support for *H1c* (F_S). For *H2*, there was no support for *H2a*, while there was partial support for *H2c*, *d* (F_S), and counter intuitive support for *H2b*, *H2c* (S_F) and *H2d* (C_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* (*H1a*, *H1b*, *H1d*). This is in agreement with previous studies which show that use of coercive power has negative effects on SCP (Sakano and Johnson, 1993; 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 coercive 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 a 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 SCM literature that a firm or a dyad is heavily influenced by the network in which it operates. This research also advances the RDT, and builds on previous work by testing the role of power in SCP 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.

6.1 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.

Second, 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 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.

6.2 Limitations and future research

Some limitations of this study are worth mentioning. First, 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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About the authors

Walter Odongo is a PhD Candidate at the Department of Agricultural Economics, Ghent University. He received his Bachelors of Science Degree in Agriculture from the Makerere University in 2004 and his Master's Degree in Agricultural and Applied Economics from the same university in 2013. His current research focuses on supply chain management with a focus on how supply chain relationships influence performance. Walter Odongo is the corresponding author and can be contacted at: odongo78@gmail.com

Manoj Kumar Dora is a Ford Foundation Fellow. He holds a Master's Degree in Economics from Vanderbilt University, USA and a PhD in Bioscience Engineering from Ghent University, Belgium. He was involved in several research projects at the World Bank, UNCTAD and Maastricht University. Currently, he is a Post-Dotoral Researcher at the Department of Agricultural Economics, Ghent University. He is researching on operational efficiency among food SMEs in Europe at Ghent University, Belgium.

Adrienn Molnar is a Part Time Postdoctoral Researcher at the Department of Agricultural Economics within the Faculty of Bioscience Engineering of Ghent University since 2011. She works Full Time at the Hungarian Academy of Sciences, Institute of Economics. Her research focuses on chain performance measurement, chain governance, chain strategies and relationships.

Duncan Ongeng is an Associate Professor and a member of the Food Security and Community Nutrition Research Group in the Faculty of Agriculture and Environment at Gulu University, Uganda. He conducts research on the agribusiness-food security nexus focusing on the impact of safety and quality on sustainability of food systems.

Xavier Gellynck is professor at the Department of Agricultural Economics within the Faculty of Bio science engineering of Ghent University. In 2002, Xavier Gellynck was promoted in the Applied Economic Sciences on the theme of the changing environment and competitiveness in the food industry. As head of the division of Agri-food Marketing and Chain Management he is involved in several research projects related to topics on chain and network management, innovation and relationship performance, and b-2-b marketing in the agri-food sector and with specific focus on SMEs.