



Journal of Agribusiness in Developing and Emerging
Economies

Role of Power in Supply Chain Performance: Evidence from Agribusiness SMEs in Uganda

Journal:	<i>Journal of Agribusiness in Developing and Emerging Economies</i>
Manuscript ID	JADEE-09-2016-0066.R1
Manuscript Type:	Research Paper
Keywords:	power, triad, structural Equations modeling, agribusiness SMEs, Supply chain performance

SCHOLARONE™
Manuscripts

1 Role of Power in Supply Chain Performance: Evidence from Agribusiness SMEs 2 3 4 5 6 7 8 9 10 11 12 13 14 15 16 17 18 19 20 21 22 23 24 25 26 27 28 29 30 31 32 33 34 35 36 37 38 39 40 41 42 43 44 45 46 47 48 49 50 51 52 53 54 55 56 57 58 59 60

1 2 3 4 5 6 7 8 9 10 11 12 13 14 15 16 17 18 19 20 21 22 23 24 25 26 27 28 29 30 31 32 33 34 35 36 37 38 39 40 41 42 43 44 45 46 47 48 49 50 51 52 53 54 55 56 57 58 59 60

4 **Abstract**

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

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

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

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

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

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

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

27 **Type:** Research Paper

30 **1.0 Introduction**

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

1
2
3 1 Blois, 2015; Rindt and Mouzas, 2015). This implies that supply chain members are
4
5 2 interdependent in a complex supply chain structure (Cai *et al.*, 2013; Chicksand, 2015;
6
7 3 Odongo *et al.*, 2016). Supply chain management (SCM) literature demonstrates that power is
8
9 4 a vital predictor of supply chain performance (SCP) (Molnár *et al.*, 2010; Nyaga *et al.*, 2013),
10
11 5 adoption (Liu *et al.*, 2015), innovation capacity (Kühne *et al.*, 2013), and customer
12
13 6 integration (Zhao *et al.*, 2008).
14
15

16 7 However, the role of power relations in supply chains is evolving as firms become
17
18 8 more complex and multifaceted. Therefore it is important to understand how power is being
19
20 9 used by different supply chain members in order to gain control and share profit and
21
22 10 ultimately how it affect the supply chain performances (Nyaga *et al.*, 2013; Rindt and
23
24 11 Mouzas, 2015). Especially in the context of small and medium sized enterprises (SMEs),
25
26 12 power disparity affect firms collaborative behaviors, either due to opportunism or stronger
27
28 13 members taking advantage to appropriate greater value of the relationship (Martin K Hingley,
29
30 14 2005; Nyaga *et al.*, 2013; Lackes *et al.*, 2015). Hence this study seek to investigate the
31
32 15 negative and positive effects of power on supply chain performance and how supply chain use
33
34 16 and perceive power (SCM) (Belaya *et al.*, 2009; Liu *et al.*, 2015).
35
36
37

38 17 Furthermore, there is a limited research on role of power in SCP in the context of
39
40 18 SMEs (Adams *et al.*, 2012; Sukwadi *et al.*, 2013). Large organizations are often well
41
42 19 equipped and prepared to play the power games in their favor. It is important for the managers
43
44 20 in small and medium sized businesses to get a better understanding of the role of power and
45
46 21 how to deal with it (Gelinas and Bigras, 2004; Matanda *et al.*, 2016). Additionally, this
47
48 22 research has a significant managerial implication in agribusiness sector give that in
49
50 23 developing countries such as Uganda are primarily dominated by small businesses (Matanda
51
52 24 *et al.*, 2016).
53
54
55
56
57
58
59
60

1
2
3 1 In departure from previous studies, this paper makes three additional contributions to
4
5 2 the SCM literature. Firstly, past studies on power in supply chains have focused on its
6
7 3 influence on resource allocation (Pulles *et al.*, 2014); power asymmetry (Nyaga *et al.*, 2013);
8
9 4 commitment (Zhao *et al.*, 2008); relationship strength (Maloni and Benton, 2000); and
10
11 5 performance (Crook and Combs, 2007; Molnár *et al.*, 2010). With a few exceptions such as
12
13 6 Molnár *et al.* (2010) and Kühne *et al.* (2013), the majority of these studies collect and analyze
14
15 7 data from one side of a relationship dyad using a focal firm approach. Analyzing a supply
16
17 8 chain at firm or dyadic levels limits understanding the underlying dynamics of the entire
18
19 9 supply chain relationships (Molnár *et al.*, 2010; Wu *et al.*, 2010; Kühne *et al.*, 2013;
20
21 10 Touboulic *et al.*, 2014). Consequently, there is a need to look beyond the dyad and into the
22
23 11 triad as a unit of analysis.

24
25
26
27 12 Secondly, relationships are by nature bi-directional, as such, there will be differences
28
29 13 in perceptions and expectations amongst supply members (Molnár *et al.*, 2010; Wu *et al.*,
30
31 14 2010; Nyaga *et al.*, 2013; Pulles *et al.*, 2014; Odongo *et al.*, 2016). Positive outcomes for the
32
33 15 whole supply chain will contribute to an individual member's success (Medlin, 2006;
34
35 16 Gagalyuk *et al.*, 2013; Petrick *et al.*, 2016). Consequently, focusing on one side of a
36
37 17 relationship dyad limits our assessment and understanding of perceptual congruence amongst
38
39 18 supply chain members (Erin Anderson and Weitz, 1992; Mentzer *et al.*, 2001;
40
41 19 Rungtusanatham *et al.*, 2003). As such, focusing on the triad as a unit of analysis will
42
43 20 facilitate our understanding of how supply chain members perceive power use and its
44
45 21 influence on performance (Minna Rollins and Schreiner, 2015).

46
47
48
49 22 Thirdly, by focusing on agribusiness SMEs in a developing country, this paper departs
50
51 23 from most previous studies that focused on large enterprises in developed countries (Sukwadi
52
53 24 *et al.*, 2013). Agribusiness SMEs participate in several interlinked supply chains which make
54
55
56
57
58
59
60

1
2
3 1 supply chain relationships a critical issues for their success (Park and Krishnan, 2001; Adams
4
5 2 *et al.*, 2012; Sukwadi *et al.*, 2013).

6
7 3 Using a triadic approach, this paper examined the perception of power use and its
8
9 4 influence on SCP amongst agribusiness SMEs in a developing country context. We
10
11 5 hypothesize that the perception of power use and its effects on SCP may not be shared across
12
13 6 a relationship triad. The subsequent section presents theoretical perspective and hypothesis
14
15 7 guiding the study followed by the methodology, results, discussion and conclusions as well as
16
17 8 recommendations drawn from the study.
18
19

20 21 9 22 10 **2. Conceptual framework and hypotheses**

23
24 11 This paper uses triadic data collection and analysis to examine a triadic business
25
26 12 relationship. Using a triadic approach is appropriate because it enables access to detailed data
27
28 13 than would be got using focal firm approach (Minna Rollins and Schreiner, 2015). To
29
30 14 facilitate understanding of this triadic power relationships, this study is grounded on the
31
32 15 Resource Dependence Theory (RDT). The RDT propagates that firms depend on each other
33
34 16 because it is not feasible to be self-sufficient and cost effective (Pfeffer and Salancik, 1978;
35
36 17 Belaya and Hanf, 2011; Wynstra *et al.*, 2015). Hence, businesses collaborate to the use each
37
38 18 other's resources and enter into a business relationship (Cai *et al.*, 2013; Murthy and Paul,
39
40 19 2016). Furthermore, the extent to which a member is dependent on another member depends
41
42 20 on two important factors, i.e., uniqueness of the resource, monopoly over it. Therefore
43
44 21 managers in small businesses have to make best possible use of resources, thereof power to
45
46 22 operate optimally (Pfeffer and Salancik, 1978). Moreover, perception of supply chain
47
48 23 members differs regarding use of power and its influence on SCP (Besser and Miller, 2010).
49
50 24 The RDT is therefore relevant in this study and has been used in previous studies to assess
51
52 25 power relationships in supply chains (Fynes *et al.*, 2005; Adams *et al.*, 2012; Sanfiel-Fumero
53
54 26 *et al.*, 2012; Cai *et al.*, 2013; Chicksand, 2015; Liu *et al.*, 2015). The application of the RDT
55
56
57
58
59
60

1
2
3 1 in this study is therefore relevant and important in advancing the conceptual and practical
4
5 2 understanding of the role of power in influencing SCP in triadic agribusiness SMEs.
6
7
8
9
10
11

12 3 13 4 **2.1 Supply chain performance (SCP)**

14 5 We define SCP as the operational measures that improve for each member, as well as for the
15 6 whole chain as result of participation in a supply chain relationship (Arzu Akyuz and Erman
16 7 Erkan, 2010; Molnár *et al.*, 2010; Whipple *et al.*, 2010; Gagalyuk *et al.*, 2013). Previous
17 8 studies have established that collaborative relationships are associated with improved SCP in
18 9 terms of cost reduction, increased fill rate, reduced inventory, and improved quality (Molnár
19 10 *et al.*, 2010; Nyaga *et al.*, 2010; Thomas *et al.*, 2011). Further, the supply chain members
20 11 requires a positive evaluation of the performance outcomes of a relationship in order to justify
21 12 continued involvement in collaborative activities (Wang *et al.* (2010).
22
23
24
25
26
27
28
29

30 13 Even though collaborative behaviors result in mutual gains, it is important to stress
31 14 here that these potential gains may not be equally shared among supply chain members.
32 15 Previous studies provide evidence of perceptual differences amongst supply chain members
33 16 with regard to the nature of relationships and SCP (Molnár *et al.*, 2010; Whipple *et al.*, 2010;
34 17 Kühne *et al.*, 2013; Nyaga *et al.*, 2013). (Erin Anderson and Weitz, 1992) showed that
35 18 perceptual differences can negatively affect the relationships among chain members and
36 19 results dissatisfaction and conflict. Similarly, while buyers and suppliers both benefited from
37 20 collaborations, suppliers had a greater feeling of inequality (Corsten and Kumar (2005).
38 21 Moreover, supply chain members are likely to possess different sources of power, which can
39 22 be used to create a certain level of stability or deterrence (Nyaga *et al.*, 2013).
40
41
42
43
44
45
46
47
48
49
50
51

52 23 This study pre-supposes that suppliers, focal firms and customers differ in their
53 24 perception of power and its effect on SCP. SCP is measured in terms of efficiency,
54 25 responsiveness, quality and chain balance. Efficiency is the best use of available resources
55
56
57
58
59
60

1
2
3 1 which include measures such as logistic costs and profits (Neely *et al.*, 1995; Aramyan *et al.*,
4
5 2 2007). Logistic cost refers to the operating and opportunity cost items that can be influenced
6
7 3 by logistic decisions and the integration of management practices and activities throughout
8
9 4 the supply chain. Profits are the net positive gains from an investment. Responsiveness is the
10
11 5 measure of speed/rate of providing the requested products, hence we considered lead-time and
12
13 6 customer complaints (Aramyan *et al.*, 2007; Molnár *et al.*, 2010; Sukwadi *et al.*, 2013). Lead
14
15 7 time is the total amount of time which elapses between sending/getting and
16
17 8 delivering/receiving goods or services (Gunasekaran *et al.*, 2001). Customer complaint is
18
19 9 defined as the formal complaints from customers regarding the product. Product quality
20
21 10 means safety and attractiveness while process quality is measured by environmental
22
23 11 friendliness (Neely *et al.*, 1995; Chen and Paulraj, 2004; Aramyan *et al.*, 2007). Chain
24
25 12 balance is defined as the understanding of distribution of risks and benefits. Risks and benefits
26
27 13 distribution refers to the extent to which business risks and compensations are shared amongst
28
29 14 supply chain members. Finally, supply chain understanding refers to chain members'
30
31 15 understanding of each other's products and processes (Molnár *et al.*, 2010).
32
33
34
35
36
37

38 17 **2.2 Influence of power on supply chain performance**

39 18 Power has been recognized as an important antecedent of SCP (Geyskens *et al.*, 1999). Power
40
41 19 is the supply chain member's ability to influence the perception, conduct and/or decisions of
42
43 20 another (Jonsson and Zineldin, 2003). Research indicates that there is always a power
44
45 21 imbalance amongst supply chain members due to the existences of large enterprises with
46
47 22 greater power than small ones (Cai *et al.*, 2013; Li *et al.*, 2013; Martin Hingley *et al.*, 2015).
48
49 23 Power imbalances usually arise due to differences in expertise, size, dependence, and the
50
51 24 nature of contract (Martin K Hingley, 2005; Belaya *et al.*, 2009; Gellynck and Molnár, 2009;
52
53 25 Kühne *et al.*, 2013; Li *et al.*, 2013; Jones *et al.*, 2014).
54
55
56
57
58
59
60

1
2
3 1 In the context of agribusiness SMEs in Uganda, processors and wholesalers usually
4
5 2 have more resources (capital) and better access to market information as compared to their
6
7 3 suppliers and customers. This unequal access to resources and information implies that focal
8
9 4 firms have a final say on purchasing decisions such as price, quantity, quality amongst others.
10
11 5 Consequently, there is more power in with the focal firms (processors and wholesalers)
12
13 6 compared to the suppliers and customers. These powerful supply chain members might
14
15 7 assume a greater influence and create some stability along the supply chain. Alternatively,
16
17 8 powerful supply chain members may use their power advantage at the cost of the weaker
18
19 9 members (Belaya *et al.*, 2009; Nyaga *et al.*, 2013; Cuevas *et al.*, 2015; Rindt and Mouzas,
20
21 10 2015). Due to their weak position in the supply chain, the weaker members are most likely to
22
23 11 comply with the stronger members for fear of losing business. It is therefore important to
24
25 12 understand the nature and effects of power in supply chains in order to provide balanced
26
27 13 benefit distributions for all supply chain members (Nyaga *et al.*, 2013).

28
29
30
31
32 14 Power bases examines the potential reasons why one member may hold authority over
33
34 15 another. According to French *et al.* (1959), power bases include: *coercive* and *non-coercive*
35
36 16 which indicate the ability of the power holder to mediate punishments or dividends; *expert*
37
38 17 power which is the perception that one member holds information or expertise which is
39
40 18 valued by another; *referent* power, which is one member's desire for identification with
41
42 19 another for recognition by association; and *legitimate* power where one member believes in
43
44 20 the right of the other member to wield influence. Of these power bases, the coercive and non-
45
46 21 coercive dichotomy is the most apparent and widely recognized power bases (Maloni and
47
48 22 Benton, 2000; Bastl *et al.*, 2013).

49
50
51
52 23 Using the coercive/non-coercive dichotomy, we view power as a mechanism by which
53
54 24 one supply chain member induces a desired action of another supply chain member by
55
56 25 providing/withholding rewards or punishment. Coercive power occurs when a member's
57
58
59
60

1
2
3 1 power permits it to affect another member's share of the benefits of a supply chain
4
5 2 relationship. It represents a power struggle driven by force by one supply chain member over
6
7 3 another (Skinner *et al.*, 1992). This power struggle may reduce the level of cooperation and
8
9 4 performance; and increase the level of conflict and tension in a supply chain relationship
10
11 5 hence reduced SCP (Terpend and Ashenbaum, 2012). Past studies has shown that coercive
12
13 6 power negatively influences SCP. We therefore hypothesize that:

16 7 **H1_a:** *Coercive power negatively affects efficiency*

18 8 **H1_b:** *Coercive power negatively affects quality*

20 9 **H1_c:** *Coercive power negatively affects responsiveness*

22 10 **H1_d:** *Coercive power negatively affects chain balance*

25 11
26
27 12 Non-coercive power is based on rewards and the belief that another member is able to
28
29 13 administer positive rewards and minimize negative rewards (French *et al.*, 1959). Non-
30
31 14 coercive power therefore involves rewards and assistances and increases the value of a
32
33 15 relationship through team support, common interests and supporting collective goals (Jonsson
34
35 16 and Zineldin, 2003). Previous studies have postulated that non-coercive power has a positive
36
37 17 effect on SCP (Zhao *et al.*, 2008; Nyaga *et al.*, 2013), hence, we hypothesize that:

40 18 **H2_a:** *Non-coercive power positively affects efficiency*

42 19 **H2_b:** *Non-coercive power positively affects quality*

44 20 **H2_c:** *Non-coercive power positively affects responsiveness*

46 21 **H2_d:** *Non-coercive power positively affects chain balance*

49 22
50
51 23 The conceptual framework underpinning the stated hypotheses is presented in figure 1.

52 24 **Insert figure 1**

54 25
55
56 26 **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),

1
2
3 1 which were purposively identified based on their involvement in the maize supply chain as
4
5 2 either a processor or wholesaler. This facilitated the subsequent snowball identification of the
6
7 3 supplier (S) and customer (C) by the FF. Each FF was first asked to identify one of their
8
9 4 important supplier (S) and customer (C) before being asked to indicate their subjective
10
11 5 assessment with respect to their individually chosen supplier (F_S) and customer (F_C).
12
13 6 Similarly, each nominated supplier was requested to provide their subjective assessment with
14
15 7 respect to the FF that nominated them (S_F); and each nominated customer was asked to
16
17 8 provide their subjective assessment with respect to the FF that nominated them (C_F). To be
18
19 9 considered for inclusion, suppliers had to be dealing directly in maize or maize products.
20
21 10 Therefore, nominated suppliers who were dealing in services such as transportation or other
22
23 11 inputs were left out of the interview process. For customers, the inclusion criteria was that
24
25 12 they had to be buying maize or maize product directly from the FF that nominated them. In
26
27 13 case of a non-response or a mismatch from one of the nominated C of S, the whole supply
28
29 14 chain was dropped from the interview process. These perspectives of data collection are
30
31 15 summarized in figure 2.
32
33
34
35

36 Insert figure 2

37
38 17 The snowball sampling technique was deemed ideal for the study as little was known
39
40 18 about the underlying dimensions of the study population. As such, the ex-ante identification
41
42 19 of respondents was not feasible (Molnár *et al.*, 2010). At the end, realized 50 matched triads
43
44 20 (150 successful interviews), that is 90% completion rate for the initiated interviews, which is
45
46 21 consistent with the snowball method of sampling. The 50 maize supply chains comprised 50
47
48 22 suppliers, 50 focal firms, and 50 customers. Most (73%) of the responding firms were small
49
50 23 enterprises, who had been in business operations for more than five years. The majority (59%)
51
52 24 was involved in the marketing of maize as flour. The firms were involved in the production,
53
54 25 processing and marketing of maize in form of flour, feeds, seeds and grains (Table 1).
55
56
57
58
59
60

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

1
2
3 1 The second stage of analysis involved estimating standardized path estimates so as to
4
5 2 assess the causal relationships amongst the constructs using structural equations modelling
6
7 3 (SEM). Following James C Anderson and Gerbing (1988), we used a two-step approach of
8
9 4 testing a measurement and structural model. A measurement model was built based on the
10
11 5 two power and four SCP constructs. The fit indices for the measurement model was good with
12
13 6 $\chi^2=94.00$, p-value=0.005, GFI=0.94, CFI=0.94, RMSEA=0.05; which fall within acceptable
14
15 7 limits for a CFA (Hu and Bentler, 1999; Janssens *et al.*, 2008). We then built a structural
16
17 8 model based on the measurement model using the maximum likelihood method. The
18
19 9 structural model was modified through co-varying the error terms on efficiency with quality,
20
21 10 and quality with responsiveness. The modification resulted in a model with good fit indices
22
23 11 ($\chi^2=104.04.54$, p-value=0.002, GFI=0.93, CFI=0.92, RMSEA=0.05), thus explaining clearly
24
25 12 the rationale for the acceptability of the model.
26
27
28
29
30

31 14 **4. Results**

32
33 15 For the pooled sample, results show that coercive power negatively and significantly
34
35 16 influenced efficiency, quality and chain balance; hence providing support for hypothesis H_{1a},
36
37 17 H_{1b}, H_{1d} (Figure 3). This finding is in agreement with previous studies which suggest that
38
39 18 coercive power negatively influences SCP (Sanfiel-Fumero *et al.*, 2012; Terpend and
40
41 19 Ashenbaum, 2012; Sheu, 2015). Although positive, the influence of non-coercive power on
42
43 20 SCP was not significant and hence H₂ was not supported.
44
45

46 21 **Insert figure 3**

47
48
49 22 Multi-group SEM analysis revealed differences in the perceptions of power use and its
50
51 23 influences on SCP amongst supply chain members. On the upstream, suppliers perceived the
52
53 24 use of coercive power by the FFs to significantly and negatively influence efficiency and
54
55 25 chain balance. FFs perceived the use of coercive power by suppliers to positively and
56
57 26 significantly influence responsiveness. This outcome is counter intuitive, as literature suggest
58
59
60

1
2
3 1 that coercive power negatively influences SCP (Sanfiel-Fumero *et al.*, 2012). This result can
4
5 2 however be explained by the informal nature of business operations in the maize supply chain
6
7 3 in Uganda. In the absences of formal contracts, supply chain members might be forced to use
8
9 4 threats, for example loss of contract, to have partners adhere to desired performance standards
10
11 5 such as delivery time and quality standards. Looking at non-coercive power, focal firms
12
13 6 perceived the use of non-coercive power to positively influence SCP. This results find support
14
15 7 in previous studies such as (Sheu, 2015) which suggests that non-coercive power has a
16
17 8 positive effect on SCP. The results with respect to the supplier was however not significant,
18
19 9 hence inconclusive. Similar studies by (Kühne *et al.*, 2013) in agri-food chains showed
20
21 10 indifference on the influence of non-coercive power on SCP.
22
23

24
25 11 On the downstream, FF did not consider the use of coercive power by the customer to
26
27 12 significantly affect SCP. Customers on the other hand perceived the use of coercive power by
28
29 13 the FF to negatively and significantly influence quality and chain balance (Table 3). The
30
31 14 perception of customers on the influence of coercive power on SCP finds support in literature
32
33 15 from previous studies such as Sanfiel-Fumero *et al.* (2012) who suggested that coercive
34
35 16 power negatively influence SCP. On the other hand, focal firms were indifferent on the
36
37 17 influence of non-coercive power on SCP, while customer perceived the use of non-coercive
38
39 18 power to negatively influence quality.
40
41
42

43 Insert Table 3

44
45 20 Concluding, while our pooled sample results generally provided partial support for H₁
46
47 21 (H_{1a}, H_{1b}, H_{1d}), it did not provide support for H₂. For the multi-group analysis, we found
48
49 22 partial support for both H₁ and H₂ across the three supply chain members. For H₁, there was
50
51 23 partial support for H_{1a} (S_F), H_{1b} (C_F), and counter intuitive support for H_{1c} (F_S) and H_{1d}
52
53 24 (S_F). For H₂, there was no support for H_{2a}, while there was partial support for H_{2b} (C_F), H_{2c}
54
55 25 (S_F) and H_{2d} (S_F). The results for the pooled and multi-group analysis support the
56
57
58
59
60

1
2
3 1 assumption that there are perceptual differences amongst supply chain members on the use of
4
5 2 power and its influence on SCP.
6
7
8
9

10 4 **5. Discussion**

11 5 Although most researchers believe that empirical studies on SCP should collect and
12
13 6 analyze data from at least three firms in a supply chain (Mentzer *et al.*, 2001; Choi and Wu,
14
15 7 2009; Wu *et al.*, 2010), only a few have attempted to do this empirically. This paper provides
16
17 8 insights into perception differences amongst supply chain members in a triadic agribusiness
18
19 9 SMEs context. The pooled sample results provide partial support H1 (H_{1a} , H_{1b} , H_{1d}). This is in
20
21 10 agreement with previous studies which show that use of coercive power has negative effects
22
23 11 on SCP (Sakano and Johnson, 1993; James R Brown *et al.*, 1996; Zhao *et al.*, 2008; Terpend
24
25 12 and Ashenbaum, 2012; Nyaga *et al.*, 2013). The results underline the informal environment in
26
27 13 which agribusiness SMEs operates in Uganda. Because business relationships are non-
28
29 14 contractual and based on trust, exercise of power will only serve to discourage supply chain
30
31 15 members from continuing in a business relationship. In practice, if one member perceives that
32
33 16 another member is being coercive, it is most likely to retaliate by declining to make specific
34
35 17 required adjustments or collaborate in joint relationship activities. The implication is that
36
37 18 agribusiness managers need to control their use of coercive power, as it may be
38
39 19 counterproductive to their performance in the long run.
40
41
42
43

44 20 The multi-group analysis revealed differences in perception amongst supply chain
45
46 21 members on the use of power and its influence SCP. While the perception of suppliers and
47
48 22 customers on the use of coercive power is in line with previous studies, there were deviations
49
50 23 when it came to the different performance parameters. For suppliers, efficiency and chain
51
52 24 balance were significantly influenced by a partners use of coercive power, while for
53
54 25 customers, quality and chain balance were critical. For focal firms, the use of coercive power
55
56
57
58
59
60

1
2
3 1 by the supplier significantly influences responsiveness. This difference in perception reveals
4
5 2 that critical SCP parameters vary from one member to another.

6
7 3 Contrary to previous studies (Molnár *et al.*, 2010; Terpend and Ashenbaum, 2012),
8
9 4 focal firms perceived the use of coercive power to positively influence performance. This
10
11 5 could suggest the existence of power asymmetry amongst agribusiness SMEs. This could be
12
13 6 the case where there are few suppliers, supplying maize with specific quality requirements to
14
15 7 focal firms. Since only few suppliers can meet these quality requirements, suppliers have the
16
17 8 power to choose which FF to sell. Hence suppliers can use this power to leverage benefits for
18
19 9 themselves.

20
21
22
23 10 Focal firms perceived the use of non-coercive power to have significant positive
24
25 11 effects on responsiveness and chain balance. This is in agreement with previous studies
26
27 12 (James R. Brown *et al.*, 1995; Nyaga *et al.*, 2013), which reported a positive association
28
29 13 between non-coercive power and SCP. This suggests that the use of rewards and incentives is
30
31 14 a strong signal from a member that they value that relationship. By implication, supply chain
32
33 15 members need to consider providing incentives, such as rewards and bonuses to their partners.
34
35 16 Such incentives will make partners feel they are appreciated and can result in a positive view
36
37 17 of the relationship. Customers perceived non-coercive power to have a significant negative
38
39 18 effect on the quality. This result is counter intuitive. However, it finds support from a study by
40
41 19 Kühne *et al.* (2013), who concluded that higher levels of non-coercive power use was
42
43 20 associated with low levels of innovation capacity in European traditional food chains.

44
45
46
47 21 Comparing the downstream and upstream, our findings suggest that different
48
49 22 performance aspects are perceived differently in the two sides of the supply chain. For
50
51 23 instance, while responsiveness is an important factor in the upstream, quality is an important
52
53 24 factor in the downstream. This actually reflects the actual situation in the maize supply chain
54
55 25 in Uganda. In the upstream, there is an need for faster delivery of products so that processing

1
2
3 1 can be done on time. On the downstream, customers are always demanding for quality
4
5 2 product, hence the importance of quality. On the other hand, chain balance appears to be
6
7 3 critical in both upstream and downstream. This finding underpins the fact that relationships
8
9 4 are bi-directional in nature, as such supply chain members will have differences in
10
11 5 perceptions towards business relationships. For agribusiness SME managers, it is essential to
12
13 6 understand how their business partners perceive the business relationships. For successful
14
15 7 business relationships, focal firms should take effort to understand their relative power
16
17 8 positions with respect to both the suppliers and customers (Lacoste and Blois, 2015). This is
18
19 9 because high levels of power asymmetry leads to more adversarial relationships, as the more
20
21 10 powerful partner will tend to be more assertive in the business relationship (Tretyak and
22
23 11 Radaev, 2013). Additionally, a lack of understanding of relative power positions of chain
24
25 12 member may lead the supply chain members to build and use wrong strategies towards its
26
27 13 business partners. Besides showing the differences and similarities between the upstream and
28
29 14 downstream, our results also highlight the importance of business relationships to
30
31 15 agribusiness SMEs performance (Adams *et al.*, 2012).
32
33
34
35
36
37
38

39 17 **6. Conclusions**

40
41 18 Results of this study give justification to the use of triad in studying supply chain
42
43 19 relationships. Pooled sample results could not reveal the underlying differences in perception
44
45 20 amongst supply chain members; which were clearly brought out when multi-group analysis
46
47 21 was conducted. Consequently, a triadic analysis exposes the underlying dimensions of a
48
49 22 supply chain better than a dyadic or firm level analysis.
50
51

52 23 By collecting and analyzing data at the supply chain level, this paper advances the
53
54 24 empirical understanding of supply chain relationships. Theoretically, the results of this paper
55
56 25 contribute to the ongoing debate in the supply chain management literature that a firm or a
57
58
59
60

1
2
3 1 dyad is heavily influenced by the network in which it operates. This research also advances
4
5 2 the resource dependence theory, and builds on previous work by testing the role of power in
6
7 3 supply chain performance in an agribusiness SMEs context that has received limited attention
8
9
10 4 in literature. It further contributes to theory by empirically testing the model in a developing
11
12 5 country in Africa.

6 7 **Managerial implications**

8 Several implications can be drawn from this research. First, managers of agribusiness SMEs
9
10 9 should be aware of their power positions and use appropriate influences based on power
11
12 10 positions in a supply chain. Since coercive and non-coercive power have contrasting effects
13
14 11 on SCP, it is important that both power source and power target recognize the presence of
15
16 12 power and reconcile their supply chain strategy to take into account power influences. For
17
18 13 managers, this implies that being open about their power positions with supply chain
19
20 14 members can help to improve on the performance of each member as well as the performance
21
22 15 of the whole supply chain.

23
24 16 Secondly, SMEs in agribusiness would greatly benefit from trust and relation benefits,
25
26 17 this implies that SMEs managers can enhance their positional advantage through realizing a
27
28 18 better performance in the supply chain. Building a mutually beneficial relationship is critical,
29
30 19 however, that requires a some level of commitment and understanding from all stakeholders.
31
32 20 This can be attained by viewing the relationship as an investment wherein a supplier or a
33
34 21 customer should be viewed as an extension of the SMEs. It is up to the focal firms to convey
35
36 22 this approach to their suppliers and customers.

37
38 23 Thirdly, use of rewards and incentives (**non-coercive power**) is a strong gesture from a
39
40 24 member that they value that relationship. Hence, supply chain members may need to consider
41
42 25 providing incentives, such as awards, bonuses or performance incentives to their **supply chain**

1
2
3 1 partners. Using incentives make partners feel appreciated and can result into a positive view
4
5 2 of the relationship. **However**, both researchers and managers in agribusiness SMEs should be
6
7 3 cautious of the recommendation that use of non-coercive power have a positive effect on the
8
9 4 quality. Finally, SMEs in the agribusiness sector need to limit the use of coercive power by
10
11 5 investing in the relational variables in order to improve efficiency, chain balance and
12
13 6 responsiveness.

7 **Limitations and future research**

8 Some limitations of this study are worth mentioning. Firstly, the study only focused on one
9
10 9 commodity chain in one country, which can limit the applicability of our findings. Future
11
12 10 studies could assess power perceptions across different commodity chains and countries to
13
14 11 understand if there are differences in perceptions. The second limitation arises from the use of
15
16 12 the matched triad approach of data collection. While ideal for studying a triad, this approach
17
18 13 is difficult to operationalize in the field especially where there is no established database for
19
20 14 SMEs. Future studies could replicate similar methodologies where businesses are more
21
22 15 formalized.
23
24
25
26
27
28
29
30
31
32
33
34
35
36
37
38
39
40
41
42
43
44
45
46
47
48
49
50
51
52
53
54
55
56
57
58
59
60

REFERENCES

- Adams, J. H., Khoja, F. M. and Kauffman, R. (2012) 'An empirical study of buyer–supplier relationships within small business organizations', *Journal of Small Business Management*, 50(1), pp. 20-40.
- Ahmed, M. (2012) 'Analysis of incentives and disincentives for maize in Uganda. Technical notes Series'. Rome: FAO.
- Anderson, E. and Weitz, B. (1992) 'The use of pledges to build and sustain commitment in distribution channels', *Journal of marketing research*, pp. 18-34.
- Anderson, J. C. and Gerbing, D. W. (1988) 'Structural equation modeling in practice: A review and recommended two-step approach', *Psychological bulletin*, 103(3), p. 411.
- 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*, 12(4), pp. 304-315.
- Arzu Akyuz, G. and Erman Erkan, T. (2010) 'Supply chain performance measurement: a literature review', *International Journal of Production Research*, 48(17), pp. 5137-5155.
- Bastl, M., Johnson, M. and Choi, T. Y. (2013) 'Who's seeking whom? Coalition behavior of a weaker player in buyer–supplier relationships', *Journal of Supply Chain Management*, 49(1), pp. 8-28.
- Belaya, V., Gagalyuk, T. and Hanf, J. (2009) 'Measuring asymmetrical power distribution in supply chain networks: what is the appropriate method?', *Journal of Relationship Marketing*, 8(2), pp. 165-193.
- Belaya, V. and Hanf, J. H. (2011) *51st Annual Conference of German Association of Agricultural Economists (GEWISOLA), Halle. Retrieved December*.
- Besser, T. L. and Miller, N. J. (2010) 'The Significance of Customer Base in the New Economy: Satisfaction and Perceptions of Success among Small Suppliers and Small Nonsuppliers', *Journal of Small Business Management*, 48(1), pp. 1-15.
- Boyer, K. K. and Swink, M. L. (2008) 'Empirical elephants—why multiple methods are essential to quality research in operations and supply chain management', *Journal of Operations Management*, 26(3), pp. 338-344.
- Brown, J. R., Lusch, R. F. and Nicholson, C. Y. (1995) 'Power and relationship commitment: their impact on marketing channel member performance', *Journal of Retailing*, 71(4), pp. 363-392.
- Brown, J. R., Lusch, R. F. and Nicholson, C. Y. (1996) 'Power and relationship commitment: their impact on marketing channel member performance', *Journal of retailing*, 71(4), pp. 363-392.
- Cai, S., Goh, M., de Souza, R. and Li, G. (2013) 'Knowledge sharing in collaborative supply chains: Twin effects of trust and power', *International Journal of Production Research*, 51(7), pp. 2060-2076.

- 1
2
3 Chen, I. J. and Paulraj, A. (2004) 'Towards a theory of supply chain management: the
4 constructs and measurements', *Journal of operations management*, 22(2), pp. 119-150.
- 5
6 Chicksand, D. (2015) 'Partnerships: The role that power plays in shaping collaborative buyer-
7 supplier exchanges', *Industrial marketing management*, 48, pp. 121-139.
- 8
9 Choi, T. Y. and Wu, Z. (2009) 'Taking the leap from dyads to triads: Buyer-supplier
10 relationships in supply networks', *Journal of Purchasing and Supply Management*, 15(4), pp.
11 263-266.
- 12
13 Corsten, D. and Kumar, N. (2005) 'Do suppliers benefit from collaborative relationships with
14 large retailers? An empirical investigation of efficient consumer response adoption', *Journal*
15 *of Marketing*, pp. 80-94.
- 16
17 Crook, T. R. and Combs, J. G. (2007) 'Sources and consequences of bargaining power in
18 supply chains', *Journal of Operations Management*, 25(2), pp. 546-555.
- 19
20 Cuevas, J. M., Julkunen, S. and Gabrielsson, M. (2015) 'Power symmetry and the
21 development of trust in interdependent relationships: The mediating role of goal congruence',
22 *Industrial Marketing Management*, 48, pp. 149-159.
- 23
24 Dalipagic, I. E., Gabriel (2014) 'Agricultural Value chain analysis in northern Uganda: maize,
25 rice, groundnuts, sunflower and sesame'. (Accessed: 27/07/2016).
- 26
27 French, J. R., Raven, B. and Cartwright, D. (1959) 'The bases of social power', *Classics of*
28 *organization theory*, pp. 311-320.
- 29
30 Fynes, B., de Burca, S. and Voss, C. (2005) 'Supply chain relationship quality, the
31 competitive environment and performance', *International Journal of Production Research*,
32 43(16), pp. 3303-3320.
- 33
34 Gagalyuk, T., Hanf, J. and Hingley, M. (2013) 'Firm and whole chain success: network
35 management in the Ukrainian food industry', *Journal on Chain and Network Science*, 13(1),
36 pp. 47-70.
- 37
38 Gelinas, R. and Bigras, Y. (2004) 'The characteristics and features of SMEs: favorable or
39 unfavorable to logistics integration?', *Journal of Small Business Management*, 42(3), pp. 263-
40 278.
- 41
42 Gellynck, X. and Molnár, A. (2009) 'Chain governance structures: the European traditional
43 food sector', *British Food Journal*, 111(8), pp. 762-775.
- 44
45 Geyskens, I., Steenkamp, J.-B. E. and Kumar, N. (1999) 'A meta-analysis of satisfaction in
46 marketing channel relationships', *Journal of marketing Research*, pp. 223-238.
- 47
48 Gunasekaran, A., Patel, C. and Tirtiroglu, E. (2001) 'Performance measures and metrics in a
49 supply chain environment', *International journal of operations & production Management*,
50 21(1/2), pp. 71-87.
- 51
52 He, Q., Ghobadian, A. and Gallear, D. (2013) 'Knowledge acquisition in supply chain
53 partnerships: The role of power', *International Journal of Production Economics*, 141(2), pp.
54 605-618.
- 55
56
57
58
59
60

- Hingley, M., Angell, R. and Lindgreen, A. (2015) 'The current situation and future conceptualization of power in industrial markets', *Industrial Marketing Management*, 48, pp. 226-230.
- Hingley, M. K. (2005) 'Power imbalance in UK agri-food supply channels: Learning to live with the supermarkets?', *Journal of Marketing Management*, 21(1-2), pp. 63-88.
- Hu, L. t. and Bentler, P. M. (1999) 'Cutoff criteria for fit indexes in covariance structure analysis: Conventional criteria versus new alternatives', *Structural equation modeling: a multidisciplinary journal*, 6(1), pp. 1-55.
- Janssens, W., Wijnen, K., De Pelsmacker, P. and Van Kenhove, P. (2008) *Marketing research with SPSS*. Pearson.
- Jones, S. L., Fawcett, S. E., Wallin, C., Fawcett, A. M. and Brewer, B. L. (2014) 'Can small firms gain relational advantage? Exploring strategic choice and trustworthiness signals in supply chain relationships', *International Journal of Production Research*, 52(18), pp. 5451-5466.
- Jonsson, P. and Zineldin, M. (2003) 'Achieving high satisfaction in supplier-dealer working relationships', *Supply Chain Management: An International Journal*, 8(3), pp. 224-240.
- 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*, 18(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*, 31(3), pp. 294-313.
- Lackes, R., Schlüter, P. and Siepermann, M. (2015) 'The impact of contract parameters on the supply chain performance under different power constellations', *International Journal of Production Research*, pp. 1-14.
- Lacoste, S. and Blois, K. (2015) 'Suppliers' power relationships with industrial key customers', *Journal of Business & Industrial Marketing*, 30(5), pp. 562-571.
- Li, B., Zhou, Y. and Wang, X. (2013) 'Equilibrium analysis of distribution channel structures under power imbalance and asymmetric information', *International Journal of Production Research*, 51(9), pp. 2698-2714.
- Liu, H., Ke, W., Wei, K. K. and Hua, Z. (2015) 'Influence of power and trust on the intention to adopt electronic supply chain management in China', *International Journal of Production Research*, 53(1), pp. 70-87.
- Maloni, M. and Benton, W. (2000) 'Power influences in the supply chain', *Journal of Business Logistics*, 21(1), pp. 49-74.
- Matanda, M. J., Ndubisi, N. O. and Jie, F. (2016) 'Effects of Relational Capabilities and Power Asymmetry on Innovativeness and Flexibility of Sub-Saharan Africa Small Exporting Firms', *Journal of Small Business Management*, 54(1), pp. 118-138.

1
2
3 Medlin, C. J. (2006) 'Self and collective interest in business relationships', *Journal of Business*
4 *Research*, 59(7), pp. 858-865.

5
6 Mentzer, J. T., DeWitt, W., Keebler, J. S., Min, S., Nix, N. W., Smith, C. D. and Zacharia, Z.
7 G. (2001) 'Defining supply chain management', *Journal of Business Logistics*, 22(2), pp. 1-25.

8
9 MFPED (2016) *Background to the Budget* Kampala: Government of Uganda. [Online].
10 Available at: [http://www.finance.go.ug/index.php/national-budget/background-to-the-budget-](http://www.finance.go.ug/index.php/national-budget/background-to-the-budget-for-financial-years.html)
11 [for-financial-years.html](http://www.finance.go.ug/index.php/national-budget/background-to-the-budget-for-financial-years.html) (Accessed: 27/07/2016).

12
13 Minna Rollins, D. and Schreiner, A. (2015) 'Triadic analysis of business relationship's
14 ending: a case study of a dyad and a third actor', *Journal of Business & Industrial Marketing*,
15 30(8), pp. 891-905.

16
17 Molnár, A., Gellynck, X. and Weaver, R. D. (2010) 'Chain member perception of chain
18 performance: the role of relationship quality', *Journal on Chain and Network Science*, 10(1),
19 pp. 27-49.

20
21 Murthy, V. and Paul, B. (2016) 'Nature of Buyer–Supplier Relationship: Small Businesses in
22 a Small City', *Journal of Small Business Management*.

23
24 Narasimhan, R. and Jayaram, J. (1998) 'Causal linkages in supply chain management: an
25 exploratory study of North American manufacturing firms', *Decision Sciences*, 29(3), pp. 579-
26 605.

27
28 Neely, A., Gregory, M. and Platts, K. (1995) 'Performance measurement system design: a
29 literature review and research agenda', *International journal of operations & production*
30 *management*, 15(4), pp. 80-116.

31
32 Nyaga, G. N., Lynch, D. F., Marshall, D. and Ambrose, E. (2013) 'Power asymmetry,
33 adaptation and collaboration in dyadic relationships involving a powerful partner', *Journal of*
34 *Supply Chain Management*, 49(3), pp. 42-65.

35
36 Nyaga, G. N., Whipple, J. M. and Lynch, D. F. (2010) 'Examining supply chain relationships:
37 do buyer and supplier perspectives on collaborative relationships differ?', *Journal of*
38 *Operations Management*, 28(2), pp. 101-114.

39
40 Odongo, W., Dora, M., Molnar, A., Ongeng, D. and Gellynck, X. (2016) 'Performance
41 perceptions among food supply chain members: a triadic assessment of the influence of
42 supply chain relationship quality on supply chain performance', *British Food Journal*, 118(7).

43
44 Park, D. and Krishnan, H. A. (2001) 'Supplier Selection Practices among Small Firms in the
45 United States: Testing Three Models', *Journal of Small Business Management*, 39(3), pp. 259-
46 271.

47
48 Petrick, I., Maitland, C. and Pogrebnyakov, N. (2016) 'Unpacking Coordination Benefits in
49 Supply Networks: Findings from Manufacturing SMEs', *Journal of Small Business*
50 *Management*, 54(2), pp. 582-597.

51
52 Pfeffer, J. and Salancik, G. R. (1978) 'The external control of organizations: A resource
53 dependence approach', *NY: Harper and Row Publishers*.

Pulles, N. J., Veldman, J., Schiele, H. and Sierksma, H. (2014) 'Pressure or pamper? The effects of power and trust dimensions on supplier resource allocation', *Journal of supply chain management*, 50(3), pp. 16-36.

Rindt, J. and Mouzas, S. (2015) 'Exercising power in asymmetric relationships: the use of private rules', *Industrial Marketing Management*, 48, pp. 202-213.

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*, 21(4), pp. 475-488.

Sakano, T. and Johnson, J. L. (1993) 'The exercise of interfirm power and its repercussions in US-Japanese channel relationships', *Journal of marketing: A quarterly publication of the american marketing association*, 57(2), pp. 1-10.

Sanfiel Fumero, M. A., Ramos Dominguez, Á. M. and Oreja Rodríguez, J. R. (2012) 'The configuration of power in vertical relationships in the food supply chain in the Canary Islands', *British Food Journal*, 114(8), pp. 1128-1156.

Sheu, J.-B. (2015) 'Power shifts and relationship quality improvement of producer-retailer green channel dyads under government intervention', *Industrial Marketing Management*, 50, pp. 97-116.

Skinner, S. J., Gassenheimer, J. B. and Kelley, S. W. (1992) 'Cooperation in supplier-dealer relations', *Journal of Retailing*, 68(2), p. 174.

Sukwadi, R., Wee, H.-M. and Yang, C.-C. (2013) 'Supply Chain Performance Based on the Lean-Agile Operations and Supplier-Firm Partnership: An Empirical Study on the Garment Industry in Indonesia', *Journal of Small Business Management*, 51(2), pp. 297-311.

Terpend, R. and Ashenbaum, B. (2012) 'The intersection of power, trust and supplier network size: Implications for supplier performance', *Journal of Supply Chain Management*, 48(3), pp. 52-77.

Thomas, R. W., Fugate, B. S. and Koukova, N. T. (2011) 'Coping with time pressure and knowledge sharing in buyer-supplier relationships', *Journal of Supply Chain Management*, 47(3), pp. 22-42.

Touboulic, A., Chicksand, D. and Walker, H. (2014) 'Managing Imbalanced Supply Chain Relationships for Sustainability: A Power Perspective', *Decision Sciences*, 45(4), pp. 577-619.

Tretyak, O. and Radaev, V. (2013) 'Market power and relational conflicts in Russian retailing', *Journal of Business & Industrial Marketing*, 28(3), pp. 167-177.

Wang, Q., Kayande, U. and Jap, S. (2010) 'The seeds of dissolution: discrepancy and incoherence in buyer-supplier exchange', *Marketing Science*, 29(6), pp. 1109-1124.

Whipple, J. M., Lynch, D. F. and Nyaga, G. N. (2010) 'A buyer's perspective on collaborative versus transactional relationships', *Industrial Marketing Management*, 39(3), pp. 507-518.

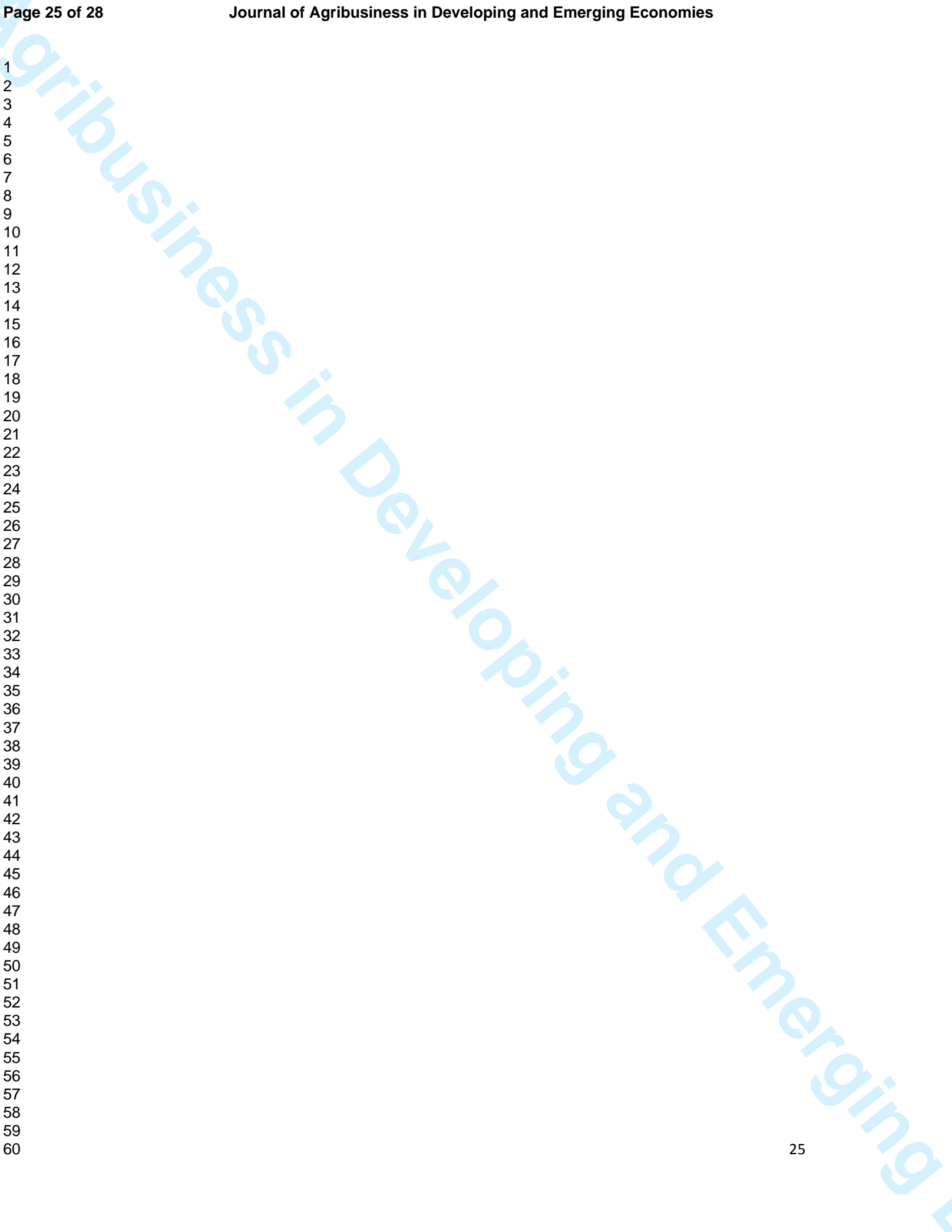
1
2
3 Wu, Z., Choi, T. Y. and Rungtusanatham, M. J. (2010) 'Supplier–supplier relationships in
4 buyer–supplier–supplier triads: Implications for supplier performance', *Journal of Operations*
5 *Management*, 28(2), pp. 115-123.
6

7 Wuyts, S., Stremersch, S., Van den Bulte, C. and Franses, P. H. (2004) 'Vertical marketing
8 systems for complex products: A triadic perspective', *Journal of Marketing Research*, pp.
9 479-487.
10

11 Wynstra, F., Spring, M. and Schoenherr, T. (2015) 'Service triads: A research agenda for
12 buyer–supplier–customer triads in business services', *Journal of Operations Management*,
13 35(0), pp. 1-20.
14

15 Zhao, X., Huo, B., Flynn, B. B. and Yeung, J. H. Y. (2008) 'The impact of power and
16 relationship commitment on the integration between manufacturers and customers in a supply
17 chain', *Journal of Operations Management*, 26(3), pp. 368-388.
18
19
20
21
22
23
24
25
26
27
28
29
30
31
32
33
34
35
36
37
38
39
40
41
42
43
44
45
46
47
48
49
50
51
52
53
54
55
56
57
58
59
60

1
2
3
4
5
6
7
8
9
10
11
12
13
14
15
16
17
18
19
20
21
22
23
24
25
26
27
28
29
30
31
32
33
34
35
36
37
38
39
40
41
42
43
44
45
46
47
48
49
50
51
52
53
54
55
56
57
58
59
60



List of Table

Table 1: Profile of the sample (%)

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

*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
<i>Supply chain performance</i>			
<i>Efficiency(EFF)</i>			
Doing business with this XX helps my company to lower transport costs significantly	0.81	1.79	0.58
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		
<i>Quality(QUA)</i>			
Doing business with this XX contributes to reducing customer/consumer complaints	0.53	1.58	0.52

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		
<i>Responsiveness (RES)</i>		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		
<i>Supply chain balance (BAL)</i>		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		
<i>KMO=0.68; Bartlets tests of sphericity: $X^2=219.11$; $p=0.000$</i>			
Power			
<i>Coercive power (CP)</i>		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		
<i>Non-coercive power (NCP)</i>		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		
<i>KMO=0.56; Bartlets tests of sphericity: $X^2=118.57$; $p=0.000$</i>			
<i>Note: 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.</i>			

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

<i>Paths and perspectives</i>			<i>Estimates</i>			
			<i>S-F</i>	<i>F-S</i>	<i>F-C</i>	<i>C-F</i>
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

List of figures

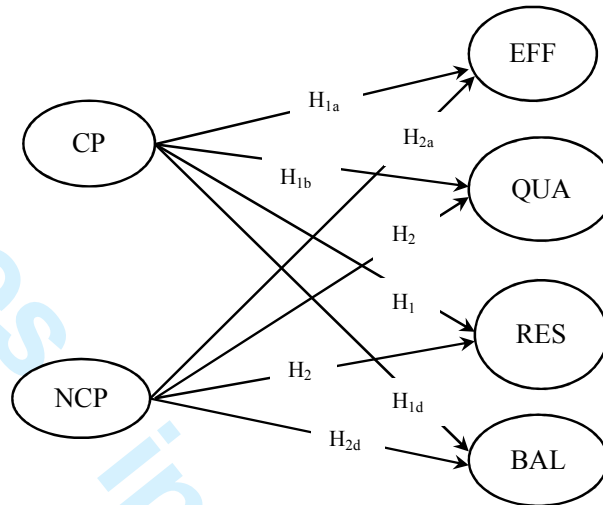


Figure 3: Conceptual framework and hypotheses

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

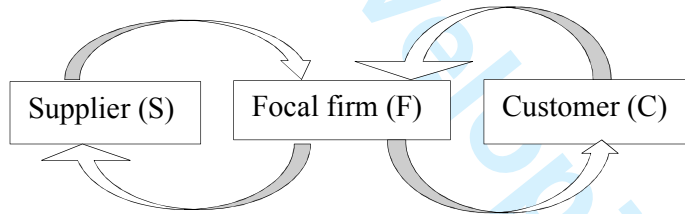


Figure 2: Relationship directions considered in data collection and analysis

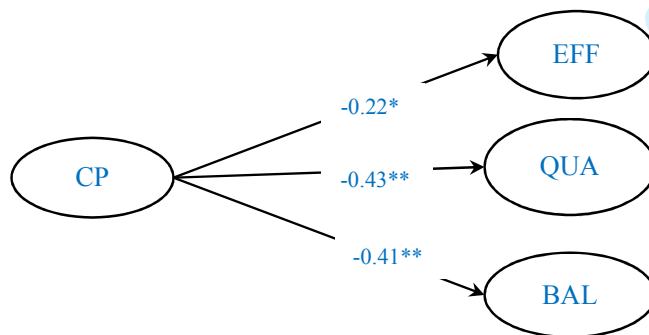


Figure 1: Significant paths for the pooled sample

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

1
2
3
4
5
6
7
8
9
10
11
12
13
14
15
16
17
18
19
20
21
22
23
24
25
26
27
28
29
30
31
32
33
34
35
36
37
38
39
40
41
42
43
44
45
46
47
48
49
50
51
52
53
54
55
56
57
58
59
60