# Accepted Manuscript

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Please cite this article as: Glavee-Geo, R., Does supplier development lead to supplier satisfaction and relationship continuation?, *Journal of Purchasing and Supply Management* (2019), doi: https://doi.org/10.1016/j.pursup.2019.05.002.

# Does supplier development lead to supplier satisfaction and relationship continuation?

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## Abstract

The primary purpose of this study is to find out if supplier development can serve as a means for buying firms to actively increase supplier satisfaction and eventually predict relationship continuity. Supplier relationships provide an essential means for buying firms to access and leverage supplier resources. One way in which buying firms influence the supply management process is through supplier development. The findings show that supplier development is an important means by which buying firms can increase supplier satisfaction. Supplier development significantly predicts the future of business relationships. Further analysis based on polynomial regressions provides evidence to show how congruence or discrepancy between economic and non-economic satisfaction impact continuance.

Keywords: Supplier resource mobilization, customer attractiveness, future business relationships, supplier development, economic satisfaction.

## 1. Introduction

Research into the phenomenon of resource mobilisation has become topical. However, the extant literature has provided only limited insights into supplier resource mobilisation processes and the way in which buying firms can influence this process through supply management efforts (Ellegaard et al., 2017). Supplier relationships are important vehicles through which buying firms access and leverage supplier resources. Supplier resource mobilisation can be influenced by the supply management efforts of the buying firm (Dyer and Hatch, 2006; Ellegaard and Koch, 2012) through supplier development initiatives/interventions to help improve the performance of suppliers (Nagati and Rebolledo, 2013).

Supplier development is defined as a "… long-term cooperative effort between a buying firm and its suppliers to upgrade the suppliers' technical, quality, delivery, and cost capabilities and to foster ongoing improvements" (Watts and Hahn, 1993, p. 12). In other words, supplier development involves "any effort of a buying firm with its suppliers to increase the performance and capabilities of the supplier and meet the buying firm's supply needs" (Krause and Ellram, 1997, p. 21). Consequently, resource mobilisation is very important, as it provides many benefits such as being a preferred customer, customer attractiveness, most valued customer, attractive business partner (Bemelmans et al., 2015; Ellegaard et al., 2003; Pulles et al., 2016; Schiele et al., 2012) among other advantages. Supplier satisfaction is central to this, but, while we know that it is important to be a preferred customer and that supplier satisfaction is pivotal to this, we know very little about how to achieve supplier satisfaction.

The purchasing literature is silent on what firms can actively do to achieve increased supplier satisfaction, better resource mobilisation and ultimately continue the relationship with the supplier, this therefore presents a gap in our understanding. Perhaps, supplier development is a key to supplier satisfaction and could eventually predict relationship continuation. Interestingly, Ghijsen et al. (2010), who highlight supplier development to increase satisfaction, only find capital-specific, but not human centred supplier development to support supplier satisfaction. On the other hand, Schiele et al. (2012) argues that supplier development is only worthwhile for existing, preferred customers who have already achieved supplier satisfaction. This study investigates resource mobilisation between small to micro-

entrepreneurial suppliers and lead firms in a developing country to address the following research questions:

- RQ1: In what ways do supplier development, and performance influence satisfaction?
- RQ2: Is supplier development key to supplier satisfaction and eventually a predictor of relationship continuation?
- RQ3: Can supplier development serve as a means for buying firms to actively increase supplier satisfaction?

Thus, we offer empirical insights on resource mobilisation from the suppliers' perspective which has to date largely been unexplored (Carr et al., 2008; Ellegaard et al., 2017; Nagati and Rebolledo, 2013). The findings from this specific and homogeneous setting (small to micro-sized agricultural commodity suppliers), though not generalisable, provide relevant and valuable insights to other contexts and industries. This article contributes to the literature by analysing supplier development as one means to increase supplier satisfaction. It provides tools on how buying firms can actively increase supplier satisfaction and shows the effects of supplier development not only on quality improvement and operational problem solving, but as a determinant of supplier satisfaction and relationship continuity. Moreover, the supplier satisfaction literature so far treats supplier satisfaction as one monolithic construct (Forker and Hershauer, 2000; Ghijsen et al., 2010; Pulles et al., 2016). The present study however, in line with Pulles et al.'s (2016:138) call for analysing different dimensions of supplier satisfaction, differentiate between economic and non-economic satisfaction. The study makes important contributions to both the literature on satisfaction and supplier development. We argue that a fit between economic and non-economic satisfaction is a prerequisite for relationship continuity, though this can be very challenging for buyers. We suggest that investments in supplier development by buying firms could have a triple effect of improving performance, social relations and economic benefits for the suppliers.

Regarding practical applications, the study provides firms with strategies by which they can attain preferred customer status and long-term supply relationships with key suppliers and thus gain a competitive advantage relative to competing buyers (see also Andersen et al., 2016; Bemelmans et al., 2015; Pulles et al., 2016; Schiele et al., 2012; Tanskanen and Aminoff, 2015; Vos et al., 2016). The rest of the article is structured as follows: theory and literature review, followed by the research model and hypotheses. Thereafter, method, results

and discussion. The theoretical, research and practical/managerial implications follow these, while the limitations and future research form the concluding part of the article.

## 2. Theory and literature review

2.1 Social exchange theory as a means to explain supplier satisfaction

Based on social exchange theory (SET), the argument that one partner or both partners must shape their attractiveness so that the other party puts effort into the relationship is consistent with previous research (Baxter, 2012; Mortensen and Arlbjørn, 2012; Pulles et al., 2016; Schiele et al., 2012; Tanskanen, 2015; Tanskanen and Aminoff, 2015). The unit of analysis in social exchange is the relationship between the actors who engage in the transaction, who can be either individuals or corporate entities acting as single units (Tanskanen, 2015). The literature (Bemelmans et al., 2015; Dwyer et al. 1987) argues that mutual attraction is important in developing relationships. Attractiveness is a fundamental SET construct that has recently received attention from scholars and researchers (e.g. Ellegaard et al., 2003; Pulles et al., 2016; Schiele et al., 2011, 2012; Tanskanen, 2015).

According to Schiele et al. (2012, p. 1180), "a customer is perceived as attractive by a supplier if the supplier in question has a positive expectation towards the relationship with this customer". Social exchange theory posits that parties enter and maintain relationships with the hope that doing so will be rewarding for each (Blau, 1968; Homans, 1958; Thibaut and Kelly, 1959). One fundamental assumption of SET is the notion of reciprocity, which entails that the more a supplier perceives its expectations to be fulfilled (i.e. satisfied), the more the same supplier reciprocates these feelings by making relational investments (Nyaga et al., 2010; Pulles et al., 2016; Vos et al., 2016). Likewise, a supplier who is dissatisfied in a relationship tends to invest more of its resources in alternative relationships (Ellegaard and Koch, 2012; Vos et al., 2016).

A critical condition for firms to achieve preferential treatment is to have satisfied suppliers (Schiele et al., 2012). Accordingly, "moving one step earlier in the chain of buyer-supplier exchange interaction, the buying firm may need to be sufficiently attractive in the first place to induce a supplier to start a business relationship at all. The distinction between the three steps of (1.) customer attractiveness (2.) supplier satisfaction and (3.) preferred customer status can be embedded in the context of social exchange theory" (Schiele et al.,

2012, p. 1179). A social exchange between the two parties not only helps to reduce uncertainties but also helps the two individuals to interlock their respective firms with each other in the long term because of successive social exchange episodes (IMP Group, 1988). SET is, therefore, better suited to being a theoretical lens for the explication of relationship continuation (Schiele et al., 2012).

The interaction approach supposes that organisations are involved in relational exchange to derive non-economic (e.g. social) satisfaction and to engage in social exchange as well as economic exchange (Macneil, 1980). Personal relationships between members of the buying and selling firms help to build trust, which in turn helps to reduce risk (Håkansson and Östberg, 1975). According to social exchange theory, the primary motivation for interaction is the seeking of rewards and the avoidance of punitive actions and sanctions, as the theory argues that attitudes and behaviours are based on the expectation of rewards minus the penalty or cost of that interaction (Emerson, 1976; Griffith et al., 2006). In summary, the foundational premises of social exchange theory postulate that:

- Exchange interactions involve economic or social outcomes;

- Over time, each party in the exchange relationship compares the social and economic outcomes from these interactions with those that are available from exchange alternatives, determining their dependence on the exchange relationship;

- Positive economic and social outcomes over time increase the partners' trust in each other and their commitment to maintaining the exchange relationship;

- Positive exchange interactions over time also produce relational exchange norms that govern the exchange partners' interactions (Lambe et al., 2001).

Besides, the comparison level (CL) explains the effect of previous experiences and expectations on an individual's satisfaction level with a relationship, while the comparison level of alternatives (CLalt) denotes the party's respective ability to obtain the desired resources from other relationships. Thus, the comparison level (CL) represents the social and economic benefits that a party feels are deserved in a relationship used as a "standard yardstick" compared with the actual outcomes that the party receives from the relationship. CLalt represents the lowest level of rewards that an actor will accept without leaving a relationship (Thibaut and Kelly, 1959).

2.2 Previous research on supplier resource mobilisation: definition, forms and effects

Previous research has conceptualised supplier resource mobilisation as an exchange process occurring between two heterogeneous firms in which actors in the buying and supplying companies actively access and influence their exchange partners' resource mobilisation (Ellegaard and Koch, 2012; Håkansson and Snehota, 1995; Lilliecreutz, 1998; Schiele, 2010; Villanueva et al., 2012). According to the literature (Bemelmans et al., 2015; Holmen and Pedersen, 2010), in examining the effectiveness of buyer-supplier relationships, the supplier's viewpoint is imperative. Even though one could argue that a supplier should treat all customers equally, some customers are undoubtedly more important business-wise than others. Recent studies on industrial firms have focused on the supplier and dealt with the influence of the so-called preferred customer status (e.g. Bemelmans et al., 2015; Pulles et al., 2016; Schiele et al., 2012; Steinle and Schiele, 2008).

Notable research (e.g. Andersen et al., 2016; Bemelmans et al., 2015; Pulles et al., 2016; Schiele et al., 2012; Tanskanen and Aminoff, 2015, among other studies) has explored the phenomenon of buyers who attempt to obtain the best resources from sellers by striving to become more attractive to suppliers. The target of the buying firm is to reach preferred customer status with the supplier (Bemelmans et al., 2015; Hüttinger et al., 2012; Pulles et al., 2016; Schiele et al., 2012). "A firm has preferred customer status with a supplier if the supplier offers the buyer preferential resource allocation. This can be accomplished in several ways. A supplier may dedicate its best personnel to joint new product development, customise its products according to the customer's wishes, offer innovations or even enter into an exclusivity agreement. The supplier might also ensure privileged treatment if bottlenecks occur due to constraints in production capacity" (Steinle and Schiele, 2008, p. 11).

Supplier resource mobilisation can also be understood as the company's activities of preparing, activating and deploying its resources for use by customers (Ellegaard and Koch, 2012). The types of supplier resource mobilisation include planning for customer initiatives, adapting to procedures and practices, problem-solving, conflict resolution, relationship management, supplier involvement and development interventions (see Appendix A). Economic and social outcomes are critical to the supplier resource mobilisation effort and the sustenance of the relationship. Consistent with the strategic buyer–supplier relationship literature (Tanskanen and Aminoff, 2015), both buyers and suppliers must shape their

attractiveness to persuade the other party to put effort into the relationship. To achieve the condition of supplier satisfaction, therefore, the quality of the outcomes must meet or exceed the supplier's expectations (Schiele et al., 2012).

## 2.3 Supplier development

Because suppliers play a crucial role in contributing to the competitiveness of the buying firm, it is logical to underscore the importance of the relationship between the buyer and the supplier. Recent studies (Ellegaard and Ritter, 2006; Mortensen and Arlbjørn, 2012) suggest an emphasis on an inter-organisational perspective with a focus on the content, process and structure of supplier development programmes from a dyadic perspective (that is, from both the buyer and the supplier viewpoint). The buyer can achieve substantial benefit by looking at supplier development programmes that consider both parties' perspectives and interests (Mortensen and Arlbjørn, 2012).

Leenders (1966) first used the term 'supplier development' to describe the process by which manufacturers increased the number of qualified suppliers, and as a means of supplier performance improvement. However, over time supply development programmes have had a major impact on the overall performance of supply chains (Humphreys et al., 2004; Mortensen and Arlbjørn, 2012). Previous research has shown that buying firms embark on a variety of supplier development practices ranging from very limited to very extensive efforts by the buyers (Ghijsen et al., 2010; Krause and Ellram, 1997; Sánchez-Rodriguez et al., 2005). The automotive industry is recognised as the pioneer of supplier development, as companies such as Toyota and Honda have been at the forefront of supplier development initiatives. This is because they have long recognised that the supply chain is only as strong as its weakest link and have invested a significant amount of time and effort in developing their suppliers (Wagner, 2006).

According to the literature (Krause et al., 2000), supplier development can be distinguished by the role of the buying firm according to whether it commits resources to a specific supplier either 'directly' or 'indirectly'. In the 'direct' role, the buying firm plays an active role and dedicates human or capital resources to the specific supplier, while the 'indirect' role involves the commitment of few or no resources (Krause et al., 2000). Direct supplier development activities include on-site visits, education and training programmes, inviting supplier personnel for meetings and the provision of capital, credit, tools, equipment

or other dedicated assets. Indirect supplier development activities involve the buying firm offering incentives or enforcing supplier improvement through the assessment of suppliers, supplier evaluations, increasing the supplier's performance goals or the promise of future business (Wagner, 2006).

## 3. Research model and hypotheses

The research model shown in Figure 1 is based on the social exchange theory (Blau, 1964; Homans, 1961), supplier satisfaction literature (Essig and Amann, 2009; Schiele et al., 2015) and supplier development literature (Ghijsen et al., 2010; Krause and Ellram, 1997; Krause et al., 2007) as the foundation for its conceptual development. Supplier development is hypothesised to have a positive impact on satisfaction, performance and the expectation of continuing the relationship. Supplier performance is posited to influence satisfaction and relationship continuity positively. The model denotes satisfaction as having a positive impact on the expectation of continuing the relationship. The history of the relationship, size of the farm enterprise and annual sales volume are used as controls.

[----Insert Figure 1 here----]

### 3.1 The impact of resource mobilisation on supplier satisfaction and future business relationships

The literature (Schiele et al., 2012) cites supplier scarcity and changes in supply chain organisation (e.g. supply base rationalisation, consolidation and outsourcing) as some of the reasons for supplier resource mobilisation. The critical issue concerning firms competing not only on the sales market but also on the supply market is that 'really good' suppliers are scarce (Cordón and Vollmann, 2008; Schiele et al., 2012, p. 1178). Suppliers actively differentiate their customer portfolios and concentrate their resource mobilisation on specific customers. Buying companies influence this mobilisation process and affect the business activities of suppliers to favour the buying company in competition with other less interesting customers (Christiansen and Maltz, 2002; Ellegaard et al., 2003). The behaviours and activities (e.g. supplier development) of the buying company become key means of influencing the resource mobilisation of suppliers (Ellegaard and Koch, 2012; Schiele, 2010).

A positive association between supplier development and performance has been proposed and supported both conceptually and empirically (e.g. Kotabe et al., 2003; Krause et al., 2007; Nagati and Rebolledo, 2013). Previous research has also shown that relationship-specific dedicated assets and investments that have been tailored to the needs of the partner help to stimulate cooperative efforts in the relationship, as these are considered to be critical factors for satisfaction (Humphreys et al., 2004). Forker and Hershauer (2000) reported that supplier development practices in the electronic component industry positively influence the satisfaction of the suppliers, while Ghijsen et al.'s (2010) study on the automotive sector of Germany was consistent with this proposition. In buyer-supplier relationships, economic satisfaction (Geyskens and Steenkamp, 2000) is a key determinant of the future of such relationships. The financial benefits that suppliers derive from the relationships are key considerations for relationship continuity. Preferential resource allocation has been found to be positively related to supplier satisfaction (Pulles et al., 2016). This reasoning leads to the first hypothesis:

**Hypothesis 1**: Supplier development has a positive impact on economic satisfaction (H1a), non-economic satisfaction (H1b) and the expectation of relationship continuity (H1c).


3.2 The impact of supplier performance on satisfaction and relationship continuity

High levels of economic satisfaction increase the partners' ability to socialise with each other to contribute to solving the problem situations that may arise in the relationship. Sociological theories (e.g. Granovetter, 1985) suggest that economic activities are embedded in social network contexts consisting of interpersonal relationships (ties) that can enhance a partner's ability to succeed, for example by gaining access to idiosyncratic information and resources on favourable terms and providing much-needed legitimacy (Korsgaard et al., 2015).

The relationship between performance and satisfaction has been established as a positive one. Barnes et al. (2011) found support for the positive association between satisfaction and performance from the perspective of Taiwanese importing firms as buyers and suppliers from native English-speaking developed countries. In their study, a buyer was quoted as saying: "when a business relationship is satisfactory and successful, both the supplier and the buyer will enjoy the final better performance, such as sales and profit" (Barnes et al., 2011, p. 519). A positive association between continuous performance improvement and supplier affective commitment (commitment to continue) to the

manufacturer was also reported in Joshi's (2009) study of manufacturer-supplier relationships. Meanwhile, Akamp and Müller's (2013) research on supplier management in developing countries based on data from 137 purchasing managers from German firms showed a significant effect of supplier performance on buyer satisfaction ($\beta$=0.61, t=8.71, p<0.001, $f^2$=0.35).

Vos et al.'s (2016) study also confirmed that supplier satisfaction has a positive impact on awarding the buyer preferred status, ultimately leading to preferential treatment. This is not possible if the supplier is not satisfied with its performance during the exchange process. This study also highlighted the importance of relational behaviour (e.g. satisfaction), operational excellence and profitability (operational and financial performance) as critical issues to be considered. More specifically, profitability has a significant direct effect on supplier satisfaction (Vos et al., 2016). Thus, increased operational and financial performance by the supplier is expected to be a source of motivation to continue with the relationship. Given the above reasoning, the second hypothesis is as follows:

**Hypothesis 2**: Supplier performance has a positive impact on economic satisfaction (H2a), non-economic satisfaction (H2b) and the expectation of relationship continuity (H2c).


3.3 The impact of supplier satisfaction on the expectation of relationship continuity

Satisfaction in business relationships has been acclaimed as one of the "overriding factors" that affect how long exchange partners might want to continue conducting business with each other (Benton and Maloni, 2005; Schiele et al., 2012; Vos et al., 2016; Wagner, 2011). According to Dwyer et al. (1987), an interfirm relationship develops through phases, and each phase is characterised by the way in which the parties regard one another. The commitment of the parties to the exchange relationship increases with satisfactory past outcomes, as these are critical for the expectation of future business relationships. The degree to which a long-term relationship has been established with a channel member is reflected in the channel member's perception of the likelihood that the relationship will continue (Anderson and Weitz, 1989). Previous research (e.g. Arndt's (1979) "concept of domesticated markets" and Thorelli's (1986) "networks") has illustrated the long-term orientation and the importance of continuity to firms. Relationship continuity can be described as the supplier's interest in building or maintaining an enduring relationship with a buyer. Stump et al. (2002)

also found support for the positive association of relationship satisfaction with relationship continuity, which they termed "subsequent expectations of continuity".

The importance of relationship continuity as a key determinant of future business collaboration between relational exchange partners was also supported by Wagner (2011) concerning the way in which outcome fairness and trust mediate the relationship between the suppliers' reputation and the future of buyer-supplier relationships. Outcome fairness (an economic factor), which can be likened to "economic satisfaction", refers to the "fairness" of the way in which the economic outcomes of the relationship are distributed between the exchange partners. Relationship satisfaction reduces the propensity to terminate business relationships (Abdul-Muhmin, 2005). Satisfaction is a necessary condition to achieve preferential resource allocation by a supplier (Schiele et al., 2012) and hence continuity of the relationship.

Social exchange theory argues that, when the satisfaction (economic or non-economic) of the parties falls below a certain threshold in the presence of alternatives, the parties reassess their dependence on the deteriorating relationship and decide whether to maintain the relationship or abandon it for the alternatives (Thibaut and Kelly, 1959). This reasoning leads to the third hypothesis, which states that economic satisfaction and non-economic satisfaction have a positive impact on the expectation of relationship continuity.

**Hypothesis 3**: Economic satisfaction (H3a) and non-economic satisfaction (H3b) have a positive impact on the expectation of relationship continuity.

## 4. Method

Based on a review of the literature, this study developed and tested a model (see Figure 1) using the PLS variance-based modelling technique, and conducted a post-hoc analysis using the polynomial regression procedure (Shanock et al., 2010). The data source was a survey of 444 small to micro-sized agro-commodity suppliers based on the key informant approach (John and Reve, 1982; Kaufmann and Astou Saw, 2014). Key informants who know the operational and financial performance of the firms are in a better position to provide a more accurate assessment of the performance capability of those businesses that they represent. In this study, the key informants, who were respondents to the various questionnaires, were the owners of the farm businesses (or informants who were knowledgeable about the operations

of the farm business) that were surveyed. The informants were expected to provide a more accurate account of the relational exchanges and performance of the companies than other employees who did not have day-to-day management/functional responsibility.

## 4.1 Survey development

A six-item statement of supplier development was formulated based mostly on Ghijsen et al. (2010) and Krause (1999). The economic satisfaction items were adapted from Geyskens and Steenkamp (2000) and Skinner et al. (1992), while the non-economic satisfaction measures were modified from Geyskens and Steenkamp (2000) and Geyskens et al. (1999). The ability to achieve the desired goals and objectives denotes a party's performance capability in an exchange relationship. Supplier performance is a subjective measure of both operational and financial measures. The non-financial (operational) measures consisted of three items adapted from Prahinski and Benton (2004) with subjective financial measures, such as profitability, modified from Haugland et al. (2007). Additional measures of return on investment and debt repayment were newly formulated (see Table 2). The item scale of supplier performance was formulated with the anchors "1=worse performance" and "7=best performance". The items for the expectation of relationship continuity were adapted mainly from Stump et al. (2002), and Wagner et al. (2011) with the anchors "1=strongly disagree" and "7=strongly agree".

## 4.2 Research setting

The Ghanaian cocoa industry was the empirical setting of this study. The unit of analysis was the relationship between cocoa raw material suppliers and buying firms. The importance of suppliers in every industry is indisputable, as suppliers are considered to be a key determinant of the success of various industries (Dwyer et al., 1987; Essig and Amann, 2009). This presupposes that small to micro cocoa farms play a critical role in the sustenance of the cocoa–chocolate industry.

Suppliers of cocoa are usually smallholder cocoa growers, geographically dispersed throughout tropical countries, forming part of an increasingly complex chain of supply and demand with different local markets and supply structures. Some cocoa producing countries have a fully liberated local market with a free market system characterised by a large number of private exporters, in others private, former state marketing monopolies retain substantial

power and control (Daviron and Gibbon, 2002). In Ghana, the industry is partially liberated, characterised by the participation of private firms and a large number of cocoa growers as the main suppliers. The industry regulator is the Ghana Cocoa Board (COCOBOD). The cocoa farms are mostly family-owned small-to-micro businesses with an average of five hectares of farmland. Figure 2 shows the Ghana cocoa supply/value chain with interlinks into the global market. The broken arrows show the flow of cocoa raw material between the buying firms (known as licensed buying companies – LBCs) and overseas and local processors (known as converters). However, most of the cocoa is eventually traded on the international market by the Cocoa Marketing Company, a subsidiary of COCOBOD.

[-------Insert Figure 2 here-----]

The focus of the present study is the sourcing relationship between the cocoa growers as suppliers and the buying firms (Figure 2 shows the delimitation of the study within the broken lines outlining the oval shape). The inclusion of smallholder agricultural commodity suppliers from developing markets in high value-adding supply chains is a strategy adopted by most agri-food companies to secure the long-term supply of agricultural commodities (such as cocoa, coffee, vegetables, fruits, nuts, spices and cotton). The industry is an important originating source of the cocoa raw material with links to the global cocoa–chocolate supply chain, a global industry estimated at \$98.3 billion as of 2016 (ICCO, 2018; M&M, 2018). Cote d'Ivoire and Ghana produce about 60% of the total world production of cocoa (Oomes et al., 2016).

Most of the sourcing firms are local companies, with the previously state-owned but now privatised company, Produce Buying Company, having the largest share of the market (31%). Other companies, such as Cocoa Merchant, Federated Cocoa Company and Transroyal, have 7% each. Olam Limited and Amajaro hold 13% and 14%, respectively. The market share of international cocoa traders is relatively low (Oomes et al., 2016). The LBCs operate a business model in which they earn revenue based on how much they can source from the farms (Barrientos et al., 2007; Cocobod, 2017; Kolavalli et al., 2012). An LBC competes with other buying companies to attract supply from the cocoa growers. The need to be the most preferred customer of a farm is the key to the LBCs' financial viability. One way in which the LBCs influence the process is to implement supplier development initiatives to

serve as the most attractive and preferred customer of the many small to micro cocoa suppliers.

4.3 Sampling and data collection

An extensive literature search and exploratory study were also carried out involving the collection of qualitative data from key informants within the industry. These culminated in the design of the survey instruments, which were pre-tested. The pre-test revealed no significant problems with scaling and measurement issues. The sampling was based on a list of farm locations across the country according to the industry regulator personnel's knowledge of the industry. Subsequently, primary data were collected through face-to-face interviews over a period of three weeks. Consent was sought from each respondent before each interview. A total of 555 interviews were targeted, out of which 487 responses were obtained, representing a response rate of 87.7%. Such a high response rate is not uncommon. Using structured interviews, for example, Haugland and Reve (1993) obtained response rates of 92%, 67% and 52% for fish farmers, exporters and international importers, respectively. The actual sample consisted of responses from 444 farms after taking care of incomplete and poorly answered questionnaires. The sample characteristics are shown in Table 1. Logarithmic transformations of the size of the farm, history of the relationship and annual sales volume were undertaken before further data analysis.

[-------Insert Table 1 here-----]

4.4 Common method variance

Common method variance (CMV) is variance attributable to the measurement method rather than to the constructs. This was a potential problem because the data for all the model variables came from the same respondents at the same time. CMV might influence some of the hypothesised relations in the structural model (Podsakoff et al., 2003). To test for the effects of common method bias, Harman's (1976) single-factor test was conducted. CMV is expected to be present if a single factor occurs from the unrotated factor solution or if one factor explains most of the variation (>50%) in the variables (Podsakoff and Organ, 1986). A one-factor solution accounted for only 34.3% of the overall variance, which indicated that common method variance bias is not likely to affect the findings of the study. However, it has

been suggested that this assessment suffers from some limitations (Kemery and Dunlap, 1986); hence, the marker variable approach (Lindell and Whitney, 2001; Malhotra et al., 2006) was also implemented.

A marker variable (e.g. age) is a variable that is theoretically unrelated to at least one other variable in the study (Lindell and Whitney, 2001). Age as a marker variable has been used in previous studies in method variance assessment (Griffith and Lusch, 2007). The marker variable approach demonstrated the lack of CMV bias when the loadings on every item in the PLS path model were estimated using a theoretically unrelated variable (herein the marker). The CMV process was accomplished by relating the estimated path model relationships with and without the markers. All the theorised paths maintained their level of statistical significance. This approach to testing common method variance suggested that method variance biases are not likely to confound the interpretations of the results and findings of this study.

## 5. Results

### 5.1 Measurement model

All the constructs in this study were operationalised as reflective measures. The model was evaluated based on internal consistency and discriminant validity. The rule of thumb for accepting items is to have loadings of 0.70 or higher, although loadings of at least 0.5 are considered to be acceptable (Hair et al., 2017). All the indicators were above 0.7 and significant (p<0.001). The indicator loadings ranged from 0.706 to 0.923, as shown in Table 2. The internal consistency was examined using Fornell and Larcker's (1981) composite reliability index and Cronbach's alpha (Nunnally, 1978).

[-------Insert Table 2 here-----]

The composite reliability values for all the constructs exceeded the acceptable value of 0.7 (Hair et al., 2014), while the construct supplier development had the lowest (0.87) and non-economic satisfaction the highest Cronbach's alpha (0.94). The Cronbach's alpha, composite reliabilities and average variance extracted (AVE) for all the constructs are shown in Table 3. An average variance extracted (AVE) value of 0.5 indicates an acceptable level (Fornell and Larcker, 1981). The AVEs obtained by the measures ranged from 0.61 to 0.82, as shown in Table 3; these were all above the acceptable value of 0.5.

[-------Insert Table 3 here-----]


Discriminant validity indicates the extent to which a given construct is different from other latent constructs. An assessment of the discriminant validity of the latent variables in the PLS path model was performed using Fornell and Larcker's (1981) criterion, which requires the square root of the AVE of each latent variable to be higher than the latent variable's correlation with any other construct in the model. A comparison of the square root of the AVE (diagonal values) and the correlations among the constructs are presented in Table 3. Each construct met Fornell and Larcker's (1981) criterion in support of discriminant validity. An examination of the loadings and cross-loadings provided further demonstration of convergent and discriminant validity, in which all the constructs were more strongly correlated with their measures than with any other construct. Also, discriminant validity was also evaluated based on the multitrait-multimethod matrix: *the heterotrait-monotrait ratio of correlations (HTMT)* (Henseler *et al*., 2015). The HTMT values are below .85, demonstrating that discriminant validity is established between any two of the composites (Hair *et al*., 2017; Hair *et al*., 2018; Henseler *et al*., 2015).


## 5.2 Structural model

Based on the conceptual model in Figure 1, the structural model was estimated using the variance-based SmartPLS 3.0 (Ringle et al., 2015). The first hypothesis stated that supplier development has a positive impact on economic satisfaction (H1a), non-economic satisfaction (H1b) and the expectation of relationship continuity (H1c). The results (see Table 4) showed that supplier development has a strong positive effect on economic satisfaction (H1a: $\beta$=0.27, t=5.45, p<0.001, $f^2$=0.083) and non-economic satisfaction (H1b: $\beta$=0.21, t=4.39, p<0.001, $f^2$=0.047) and a very strong positive effect on the expectation of relationship continuity (H1c: $\beta$=0.56, t=15.31, p<0.001, $f^2$=0.561), indicated by the large effect size of 0.561. The second hypothesis postulated supplier performance to have a positive impact on economic satisfaction (H2a), non-economic satisfaction (H2b) and the expectation of relationship continuity (H2c). This study found support for the positive effect of supplier performance on economic satisfaction (H2a: $\beta$=0.29, t=5.67, p<0.001, $f^2$=0.099) and on non-economic satisfaction (H2b: $\beta$=0.28, t=5.59, p<0.001, $f^2$=0.082). However, the estimation results showed very weak support for H2c ($\beta$=0.06, t=1.29, p<0.10, $f^2$=0.005). Thus, the

effect of supplier performance on the expectation of relationship continuity seems to be inconclusive.

The third hypothesis stated that economic satisfaction and non-economic satisfaction have a positive impact on the expectation of relationship continuity. While support was found for the positive effect of non-economic satisfaction on the expectation of relationship continuity (H3b: β=0.24, t=5.21, p<0.001, $f^2$=0.075), the effect of economic satisfaction on the expectation of relationship continuity was found to be weak and inconclusive (H3c: β=0.07, t=1.44, p<0.001, $f^2$=0.006). The uniqueness of the context could explain the weak support. Likewise, *COCOBOD* controls the local cocoa supply, when it comes to setting a minimum guaranteed price. Though buying companies are free to pay more than the minimum price, the cocoa growers barely earn above the minimum price per kilogram of cocoa supply. The results (Table 4) also show the four interaction effects that were estimated. The interaction effect between economic and non-economic satisfaction was found to be significant (ESXNS: β=0.04, t=2.27, p<0.05, two-tailed), while that between supplier performance and supplier development was also found to be significant but negative (SPXSD: β=-0.06, t=1.65, p<0.05, one-tailed). We also estimated the model using Consistent PLS (PLS-C) (Dijkstra and Henseler, 2015) in SmartPLS 3.0 (Ringle et al., 2015). The results (see Appendix B) show consistency in the associations between the constructs regarding their significance, except for the effect of economic satisfaction, supplier performance, and supplier performance x supplier development on relationship continuity, which were insignificant. Furthermore, tests of indirect effects (Hair et al., 2017) showed the mediating role of supplier satisfaction between the supplier development and the expectation of relationship continuity. Tables 4 and 5 present the results of the structural model and indirect effects, respectively.

[-------Insert Table 4 here-----]
[-------Insert Table 5 here-----]

5.3 Post-hoc analysis

The inconclusiveness of some of the results (e.g. the weak effect of economic satisfaction and supplier performance on the expectation of relationship continuity, and the interaction effects) necessitated a post-hoc analysis based on polynomial regressions (Shanock et al., 2010). First, we explored the discrepancies between the independent variables to evaluate the

need for further investigation. Table 6 shows that, for each pair of independent variables, it was worth progressing with the analysis, since more than 10% (Shanock et al., 2010) of discrepancies occurred. The polynomial regressions and surface analysis find support for the linear relationship between economic and non-economic satisfaction in relation to relationship continuity (slope along x=y as related to Z: $\beta$=0.49, t=7.52, p<0.001). Figure 3 is a three-dimensional graphical representation of the results of model 1, showing the effect of economic and non-economic satisfaction regarding relationship continuity. Thus, low levels of both economic and non-economic satisfaction lead to low levels of expectation of continuing the relationship, while high levels of both economic and non-economic satisfaction lead to a significant increase in relationship continuity expectations. Another interesting observation from Figure 3 reveals that at high levels of economic satisfaction, increasing levels of non-economic satisfaction lead to high relationship continuity. While at high levels of non-economic satisfaction, increasing levels of economic satisfaction lead to high relationship continuity. Thus, economic and non-economic satisfaction enhance each other to positively influence continuity. Model 2 (see Figure 4) results show a linear relationship between the effects of supplier development and supplier performance on relationship continuity. Low levels of supplier development and performance lead to low levels of expectation of continuing the relationship, while high levels of supplier development and performance lead to a significant increase in the relationship continuity expectation.

High levels of supplier performance combined with low levels of supplier development lead to moderately low levels of continuity expectations compared with higher expectations when the levels of both supplier development and performance are high. Figure 4 also shows a high degree of stability in relationship continuity expectations irrespective of the level of performance but with high levels of supplier development.

[-------Insert Figure 3 here-----]

[-------Insert Figure 4 here-----]

With regard to the association between supplier performance and supplier development in relation to economic satisfaction, the test of the slopes and curves shows significant linear relationship of the slope along x=y ($\beta$=0.55, t=10.52, p<0.001), similarly, the test of the curvatures are significant (x=y in relation to z: $\beta$=0.24, t=3.74, p<0.001) and (x=-y in relation to z:$\beta$=0.28, t=4.22, p<0.001). Congruence between supplier development and performance

has a positive significant linear relationship with economic and non-economic satisfaction (Figure 5). On the response surface graph, the dashed line on the floor of the graph depicts the line of incongruence between supplier development (SD) and supplier performance SP (this is not shown in the diagram but is the imaginary line from the centre of the graph to either the left or right), and shows how the degree of discrepancy between SD and SP relates to economic satisfaction ES. The graph shows that satisfaction is minimum at the centre, moving along the SP=-SD (x=-y) away from the centre towards either left or right relates to economic satisfaction. The graph shows that towards the left (more SD, less SP) and right (more SP, less SD) ES is relatively high. Though the slope along the x=-y is not significant (Model 3, Figure 5), the curvature along the line of incongruence was found to be significant.

[-------Insert Figure 5 here-----]

[-------Insert Figure 6 here-----]

Though the empirical analysis did not find support for the surface analysis test of curvatures and slope for the effect of supplier performance and supplier development in relation to non-economic satisfaction, the analysis shows significant linear association (x=y in relation to Z: $\beta=0.53$, t=7.47, p<0.001). Thus, the congruence between the extent of supplier development and supplier performance in relation to non-economic satisfaction is significant. The post-hoc analysis suggests that relationship continuity expectation could be certain when there is a match between economic and non-economic satisfaction. While a fit between supplier development and performance is a prerequisite for non-economic satisfaction, in economic satisfaction, a fit between supplier development and performance is a prerequisite as a misfit has consequences. These findings have implications in terms of theory development vis-à-vis both satisfaction literature and the supplier development literature and provide important managerial implications regarding supplier resource mobilization.

## 6. Discussion

Gaining preferential treatment and achieving preferred customer status are synonymous with a supplier wanting to continue the relationship with the buying firm long into the future. However, the challenge is understanding how buying firms can ensure that suppliers will accord them that special status. Supplier development could be crucial for supplier satisfaction and eventually relationship continuation. This study aimed to answer the

following research questions. In what ways do supplier development, and performance influence satisfaction? Is supplier development key to supplier satisfaction and does it eventually predict relationship continuation? Can supplier development serve as a means for buying firms to actively increase supplier satisfaction?

First, the analysis showed that supplier development activities contribute significantly to supplier performance, consistent with the literature (Ağan et al., 2016; Ghijsen et al., 2010; Mahapatra et al., 2012; Nagati and Rebolledo, 2013; Wagner et al., 2011). Second, the analysis also shows a significant positive effect of supplier development on the two dimensions of supplier satisfaction, that is, economic satisfaction and non-economic satisfaction (Geyskens and Steenkamp, 2000), and reported significant effects on both aspects.

Third, supplier performance had a significant impact on economic and non-economic satisfaction while the empirical data supported the positive effect of supplier development on the expectation of relationship continuity (Joshi, 2009). Fourth, the study provides evidence to show the mediating role of satisfaction. Satisfaction was also a significant mediator between customer attractiveness and preferential resource allocation (Pulles et al., 2016). Satisfaction is an important factor influencing future business intentions. The findings from the study are consistent with this assertion (Schiele et al., 2012; Vos et al., 2016; Wagner et al., 2011). Fifth, the literature has been silent on the levels of 'economic and non-economic' satisfaction influencing relationship continuity. Although authors have often presumed a link between satisfaction and relationship continuity (e.g. Joshi, 2009), the empirical evidence on the way in which the dimensions of satisfaction affect relationship continuity is limited.

## 7. Theoretical, research and managerial implications

This study makes several contributions to the literature. First, this article contributes to theory building by modelling the effect of supplier development on economic and non-economic satisfaction (dimensions of supplier satisfaction) in a nomological structural relationship with performance and the outcome variable expectation of relationship continuity using the variance-based PLS analytical technique. Second, the additional systematic evaluation, based on polynomial regression and response surface analysis, helped to provide a more nuanced exploration of the interactions. For example, while non-economic satisfaction may be more

important, in the absence of economic satisfaction only modest levels of continuation expectations are reached. Hence, both economic and non-economic satisfaction are needed.

Several key findings of the study would not have been possible without the use of the polynomial regression technique. For example, one of the key findings of the paper is that a fit between economic and non-economic satisfaction is critical for relationship continuity. Besides, to achieve non-economic satisfaction in the supplier resource mobilization process, investments in supplier development by the buyer should be commensurate with supplier performance. Thus, congruence between supplier development and performance is linearly related to non-economic satisfaction. On the other hand, the influence of the association between supplier development and supplier performance on economic satisfaction is not only linearly related but also non-linearly. Thus, both a match and a mismatch between supplier development and supplier performance on economic satisfaction are non-linearly related (See Table 8). These insights were only possible with polynomial regression.

From a research and methodological perspective, the article demonstrates the value of adding a polynomial analysis. For example, a study by Caniëls et al. (2018) of the effects of balanced and asymmetric dependence on supplier satisfaction shows the usefulness of this analytic technique. Therefore, this article provides additional evidence in demonstrating the application of response surface analysis based on polynomial regressions to help understand complex relationships of a phenomenon in purchasing and supply management research.

Third, the paper shows that satisfaction partially mediated the effect of supplier development on relationship continuity. Satisfaction not only serves as an antecedent or outcome variable but can be used conceptually as a mediating variable. Satisfaction can be operationalised as a multidimensional construct or a single construct. Operationalising satisfaction as a multidimensional construct helps in a better factorial validation and nomological structural relationships.

This article also makes valuable contributions to strategic issues within purchasing that are of importance to managers. First, the study argues that for buying firms to increase satisfaction through supplier development, the focus should not be on only one form of satisfaction at the expense of the other. This is because the consequences of concentrating on one form of satisfaction at the expense of the other can lead to the unwillingness of the supplier to continue the relationship. In addition to the willingness to end exchange relationships due to unprofitable customers (Helm et al., 2006), this article suggests that there

is a high likelihood of suppliers ending customer relationships due to deteriorating social relations or both unless there is no viable alternative. Within the research context, preliminary qualitative interviews disclosed that cocoa growers' solution to the lack of viable alternatives was to accord preferred customer status to more than one buying firm such that they switched from one buying firm to the other depending on how the buying firms were able to satisfy their social and economic needs and benefits. Thus, suppliers can award preferred customer status to buying firms in succession, therefore, leading to serially acquired preferred customer status.

Second, supplier development is a means to increase economic and non-economic supplier satisfaction and relationship continuation. The effect is especially pronounced with poorly performing suppliers, but also with good suppliers, even though to a lesser extent. This is evidenced in relation to economic satisfaction. The effect of supplier development on increasing non-economic satisfaction is very pronounced for high performing suppliers. Also, increasing levels of the performance of suppliers leads to increased non-economic satisfaction for suppliers with higher levels of supplier development. The implication is that buying firms that invest in supplier development for performance improvement are more likely to have increased social relations with their suppliers. Even though the main objective of supplier development initiatives is to improve the performance of suppliers, supplier development also leads to improved social relations. Consequently, investments in supplier development by buying firms could have triple effects of improving performance, social relations and economic benefits for the suppliers.

Third, the empirical study also showed that a significant discrepancy between economic and non-economic satisfaction leads to a lower expectation of relationship continuity. Thus, relatively high levels of both economic and non-economic satisfaction are required to make the relationship 'self-sustaining'. The practical implication is that it is not enough to ensure economic satisfaction (or social), because this may still lead to losing the support of the supplier and being no longer able to mobilise this supplier's resources if the condition of noneconomic (or economic) satisfaction is not met. The willingness to continue with the relationship depends on the extent of congruence between the levels of economic and non-economic satisfaction. Ensuring consistent relational as well as economic satisfaction is a prerequisite for securing supplies (especially in strategic buyer–supplier relationships). This is a challenge to buying companies. Managers should focus on leveraging resources that are targeted at both the social as well as the economic wellbeing of

suppliers. Managers should increase social interactions through having favourable personal relationships with the supplying company personnel, visitations, performance briefings, meetings and joint problem-solving forum are some of the strategies to stimulate good social relations.

Fourth, it may be that few managers are aware of non-economic satisfaction being almost a necessary condition; providing economic awards and then still receiving little positive feedback from the supplier may be a cause of considerable frustration for the purchaser. Buying firms should shape their attractiveness to make the other party (i.e. the supplier) accord them preferred customer status. This status is demonstrated by the willingness of the supplier to maintain and continue the relationship (Baxter, 2012; Mortensen and Arlbjørn, 2012; Pulles et al., 2016; Schiele et al., 2012; Tanskanen, 2015; Tanskanen and Aminoff, 2015).

Fifth, the findings show that congruence between supplier development and supplier performance is linearly related to satisfaction (in the case of both economic and non-economic satisfaction). This implies that one way by which supplier development influences satisfaction is when it is in correspondence with the performance of the supplier. Economic satisfaction is modest at low levels of supplier development and performance, however, increasing levels of both supplier development and performance significantly lead to an increase in economic satisfaction. The implication is that purchasing, and sourcing managers should monitor suppliers' performance vis-à-vis investments that the buying firm makes to ensure efficient use of resources. Also, the response surface analysis (Model 3, Figure 5) shows significant curvature implying that the road to increasing economic satisfaction of suppliers is not smooth but bumpy.

This is true within the context of small to micro farms where many disruptions and uncertainties (unpredictable weather conditions, plant diseases among other factors affect cocoa yield) influence performance. Moreover, the seasonality of the cocoa business, in which investments are made and no returns are seen until later at the harvest period, implies that when buying firms invest in suppliers, sometimes a gestation period is required before performance improvement can be realised. This has an implication for short-term versus long-term performance improvement goals that buyers may set for their suppliers. Synchronising the strategic purchasing and sourcing objectives of the buying firm with that of the supplier can be helpful in performance expectations and evaluations.

Regarding the sixth important practical contribution, this article evidentially shows that supplier development extends beyond performance improvement. The significant impact of supplier development on the overall maintenance of the relationship through the stimulation of satisfactory and economically beneficial bilateral exchanges leads to high expectations of future business opportunities. In mobilising resources, the role of supplier development in influencing the supply management process is consistent with previous research (Dyer and Hatch, 2006; Ellegaard and Koch, 2012; Ellegaard et al., 2017; Kotabe et al., 2003; Krause et al., 2007; Nagati and Rebolledo, 2013; Schiele, 2010; Villanueva et al., 2012).

## 8. Limitations and future research

The current study is not without limitations, and therefore to interpret the results, we should take into consideration the factors discussed below. Small and micro enterprises generate a significantly larger percentage of new jobs than large companies (Campbell and Park, 2017; Ellegaard, 2006). However, despite the increased general academic interest in small companies, it appears that purchasing and supply issues have received insufficient attention in the small company literature (Campbell and Park, 2017; Ellegaard, 2006). However, one limitation of this study is the fact that we cannot be sure if buyer–supplier relations in large firms are similar. The agricultural supply marketplace studied here is not a highly differentiated one, it is a homogenous network of small entrepreneurial farm businesses and buying companies clustered around one commodity (Gereffi and Lee, 2012). This calls for further research based on medium to large-sized firms in developing and developed countries to find more support for the findings in the current study.

Satisfaction may differ from day to day depending on recent incidents that the respondent recalls. Thus, satisfaction will vary from time to time. The extent of satisfaction reported at the time of data collection may vary if the same data collection is done at another time. Subsequently, the cross-sectional nature of the data does not allow for causal inferences. Further research applying longitudinal data can help in capturing the changing dynamics of supplier satisfaction and the expectation of relationship continuity. Previous studies (e.g. Helm et al., 2006) looked at the willingness of suppliers to end unprofitable customer relationships. While this current study's focus is on relationship continuity, it might be possible that some of the suppliers may be willing to terminate unprofitable (low

economic satisfaction) customer relationships. Future studies can integrate the unwillingness concept with the concepts discussed in the article. Finally, a mismatch between the economic and non-economic satisfaction is prejudicial to relationship continuity. This calls for further research on how this mismatch can impact the buyer-supplier resource mobilization process.

## Acknowledgement

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Appendix A. Types of supplier resource mobilisation activities. Source: Adapted from Ellegaard and Koch (2012).

| Resource mobilisation activity type | Supplier/buying company employees involved | Activity examples |
|---|---|---|
| Planning/preparation for customer initiatives | Executives, sales managers, service employees, engineers | Visiting customer draw up agreements, specify activities, learn customer processes |
| Clarification/ re-negotiation | Sales managers, service employees | Meeting to clarify and re-negotiate responsibilities, work tasks, prices, terms… |
| Adaptation of procedures and practices | Sales managers, service employees, technicians | Documentation, quality management, logistics, ordering… |
| Redundant work processes | Sales managers, production workers | Various production and contractor work processes such as window production and assembly and on-site installation work. |
| Customer service | Sales managers, service employees | Responding to complaints, on-site process assistance, on-site product assistance, teaching, operations employees… |
| Process solving | Sales managers, service employees | Onsite solving of problems with delivery, product damages, work coordination, logistics… |
| Conflict resolution/relationship management | Sales managers | Meetings, emails, phone calls, on-site encounters... |
| Supplier involvement/development initiatives | Key account managers, purchasing/procurement managers, purchasing agents, R&D personnel, product development officers, sourcing managers/agents | Visitations, performance improvement, process auditing, meetings, recognition, research & development, certifications, education/training, investments, contracting, relationship management, risk assessment, joint development activities… |

Appendix B. Structural model results based on consistent PLS (N=444)

| Criterion | $R^2$ | Predictors | β | t-value# | $f^2$ | VIF |
|---|---|---|---|---|---|---|
| Supplier performance | 0.32 | Supplier development | 0.21*** | 4.71 | 0.051 | 1.04 |
| | | Size of farm enterprise | 0.38*** | 8.80 | 0.162 | 1.21 |
| | | Sales volume | 0.23*** | 4.68 | 0.059 | 1.18 |
| | | | | | | |
| Economic satisfaction | 0.20 | Supplier development | 0.30*** | 5.71 | 0.083 | 1.09 |
| | | Supplier performance | 0.31*** | 5.49 | 0.099 | 1.09 |
| | | | | | | |
| Non-economic satisfaction | 0.15 | Supplier development | 0.22*** | 4.39 | 0.047 | 1.09 |
| | | Supplier performance | 0.29*** | 5.26 | 0.082 | 1.09 |
| | | | | | | |
| Expectation of relationship continuity | 0.53 | Supplier development | 0.64*** | 15.07 | 0.561 | 1.20 |
| | | Economic satisfaction | 0.05 | 0.71 | 0.006 | 2.04 |
| | | Non-economic satisfaction | 0.26*** | 4.77 | 0.075 | 1.69 |
| | | Supplier performance | 0.05 | 0.83 | 0.005 | 1.63 |
| | | History of relationship | 0.03 | 0.90 | 0.002 | 1.03 |
| | | Size of farm enterprise | 0.03 | 0.70 | 0.002 | 1.46 |
| | | Sales volume | 0.03 | 0.65 | 0.001 | 1.26 |
| | | Economic satisfaction x Non-economic satisfaction | 0.04* | 2.20 | 0.012 | 1.64 |
| | | Supplier performance x Non-economic satisfaction | 0.03 | 0.51 | 0.002 | 2.04 |
| | | Supplier performance x Supplier development | -0.07 | 1.54 | 0.009 | 1.20 |
| | | Supplier performance x Economic satisfaction | 0.02 | 0.33 | 0.000 | 2.28 |

*Notes: # Based on 2000 bootstrap samples. ***p<0.001   **p<0.01   *p<0.05 (Two-tailed test)   Effect size ($f^2$) measures the relevance of each predictor of a dependent latent variable based on coefficient of determination ($R^2$) when including or excluding a particular predictor from the model. Variance inflation factor (VIF) is the extent to which standard error has been increased due to the presence of collinearity. VIF values of 5 or higher indicate a potential collinearity problem (Hair et al. 2017). Size of farm enterprise, history of relationship and annual sales volumes were transformed into natural log before used for analysis.*

Table 1. Sample characteristics

| Characteristics | Category | Frequency | Percent |
|---|---|---|---|
| Gender of key informant | Female | 163 | 36.7 |
| | Male | 281 | 63.3 |
| Age of key informant | Below 30 | 22 | 5.0 |
| | 31-40 | 56 | 12.6 |
| | 41-50 | 115 | 25.9 |
| | Above 50 | 251 | 56.5 |
| Size of farm enterprise (Hectares) | 1-5 | 286 | 64.41 |
| | 6-10 | 110 | 24.77 |
| | 11-15 | 25 | 5.63 |
| | 16-20 | 14 | 3.15 |
| | 21-25 | 7 | 1.57 |
| | 26-30 | 2 | 0.45 |
| History of relationship (years) | 1-5 | 251 | 56.53 |
| | 6-10 | 128 | 28.82 |
| | 11-15 | 42 | 9.46 |
| | 16-20 | 15 | 3.38 |
| | 21-25 | 5 | 1.13 |
| | 26-31 | 3 | 0.67 |
| Annual sales volume (number of bags per 62.5kg) | Less than 5 | 229 | 51.57 |
| | 6-10 | 128 | 28.83 |
| | 11-15 | 34 | 7.66 |
| | 16-20 | 28 | 6.31 |
| | 21-25 | 6 | 1.35 |
| | 26-30 | 9 | 2.03 |
| | Above 31 | 10 | 2.25 |
| Supplier cooperative membership | Yes | 143 | 32.2 |
| | No | 301 | 67.8 |

Table 2. Construct, indicators and loadings (n=444)

| Construct | Indicators | M | SD | Loadings# |
|---|---|---|---|---|
| Supplier development | This buying company's personnel: | | | |
| | Makes visits to help me improve my performance.**SD1** | 4.83 | 1.79 | 0.822*** |
| | Frequently invites me to discuss issues for performance improvement concerning quality of my cocoa beans.**SD2** | 4.74 | 1.71 | 0.854*** |
| | Recognizes my farm business for achievements/performance in the form of awards.**SD3** | 4.59 | 1.70 | 0.735*** |
| | Provides my farm business with training/education.**SD4** | 4.67 | 1.54 | 0.833*** |
| | Provides my farm business with equipment or tools for improvement.**SD5** | 4.23 | 1.71 | 0.732*** |
| | Provides my farm business with credit/capital.**SD6** | 4.18 | 1.66 | 0.706*** |
| Economic satisfaction | My relationship with this buying company has been very beneficial to my farm enterprise.**ES1** | 5.39 | 1.32 | 0.773*** |
| | My relationship with this buying company is very attractive concerning prompt payment of cash bonuses.**ES2** | 5.34 | 1.44 | 0.882*** |
| | I am very pleased with my decision to sell to this buyer due to the financial benefits in the form of soft loans.**ES3** | 5.27 | 1.45 | 0.896*** |
| | I would recommend that other farmers sell their products to this buying company to benefit financially.**ES4** | 5.13 | 1.46 | 0.884*** |
| | I am always very satisfied with the amount of cash bonus paid to me by this buying company. **ES5** | 4.91 | 1.51 | 0.817*** |
| Non-economic satisfaction | I have a favourable relationship with this buying company personnel.**NS1** | 4.76 | 1.49 | 0.852*** |
| | I am satisfied with dealing with this buying company.**NS2** | 4.75 | 1.58 | 0.907*** |
| | Would continue selling to this buying company because of the excellent personal relationship I have with their staff.**NS3** | 4.67 | 1.62 | 0.923*** |
| | This buying company is good to do business with.**NS4** | 4.65 | 1.65 | 0.918*** |
| | I am pleased with dealing with this buying company always.**NS5** | 4.71 | 1.61 | 0.907*** |
| Supplier performance | Compared to other farm businesses, my farm performs well during the last six months on the following aspects: | | | |
| | Product quality.**SP1** | 4.77 | 1.52 | 0.837*** |
| | Delivery performance.**SP2** | 4.64 | 1.48 | 0.856*** |
| | Responsiveness to requests for changes.**SP3** | 4.52 | 1.53 | 0.841*** |
| | Profitability. **SP4** | 4.67 | 1.48 | 0.861*** |
| | Return on investment. **SP5** | 4.78 | 1.45 | 0.879*** |
| | Debt repayment.**SP6** | 4.81 | 1.47 | 0.842*** |
| Expectation of relationship continuity | I believe that: | | | |
| | My relationship with this buying company will continue in the future.**EX1** | 4.73 | 1.47 | 0.898*** |
| | A renewal of relationship with this buying company is automatic.**EX2** | 4.66 | 1.56 | 0.911*** |
| | It is very likely that my farm business will still be dealing with this buying company in 2 years.**EX3** | 4.75 | 1.61 | 0.916*** |
| | My farm and this buying company will continue to do business with each other for a long time.**EX4** | 4.77 | 1.66 | 0.911*** |

*Note: # Based on 1000 bootstrapping samples    \*\*\* p<0.001 (two-tailed)*

Table 3. Discriminant validity

| | Cronbach's Alpha | Composite reliability | AVE | 1 | 2 | 3 | 4 | 5 |
|---|---|---|---|---|---|---|---|---|
| Supplier development (1) | 0.87 | 0.90 | 0.61 | **0.78** | | | | |
| Economic satisfaction (2) | 0.91 | 0.93 | 0.73 | 0.35 | **0.85** | | | |
| Non-economic satisfaction (3) | 0.94 | 0.96 | 0.81 | 0.28 | 0.61 | **0.90** | | |
| Supplier performance (4) | 0.92 | 0.94 | 0.73 | 0.28 | 0.37 | 0.33 | **0.85** | |
| Expectation of relationship continuity (5) | 0.93 | 0.95 | 0.82 | 0.66 | 0.39 | 0.43 | 0.33 | **0.91** |

*Bold numbers on the diagonal show the square root of the AVE. Numbers below the diagonal represent the construct correlations.*

Table 4. Structural model results estimated with PLS (N=444)

| Criterion | $R^2$ | Predictors | β | t-value# | $f^2$ | VIF |
|---|---|---|---|---|---|---|
| Supplier performance | 0.32 | Supplier development | 0.19*** | 4.65 | 0.051 | 1.04 |
| | | Size of farm enterprise | 0.37*** | 9.25 | 0.162 | 1.21 |
| | | Sales volume | 0.22*** | 4.59 | 0.059 | 1.17 |
| | | | | | | |
| Economic satisfaction | 0.20 | Supplier development | 0.27*** | 5.45 | 0.083 | 1.09 |
| | | Supplier performance | 0.29*** | 5.67 | 0.099 | 1.08 |
| | | | | | | |
| Non-economic satisfaction | 0.15 | Supplier development | 0.21*** | 4.39 | 0.047 | 1.09 |
| | | Supplier performance | 0.28*** | 5.59 | 0.082 | 1.09 |
| | | | | | | |
| Expectation of relationship continuity | 0.53 | Supplier development | 0.56*** | 15.31 | 0.561 | 1.20 |
| | | Economic satisfaction | 0.07 [b] | 1.44 | 0.006 | 1.04 |
| | | Non-economic satisfaction | 0.24*** | 5.21 | 0.075 | 1.69 |
| | | Supplier performance | 0.06 [b] | 1.29 | 0.005 | 1.63 |
| | | History of relationship | 0.03 | 0.87 | 0.002 | 1.03 |
| | | Size of farm enterprise | 0.04 | 0.99 | 0.002 | 1.46 |
| | | Sales volume | 0.03 | 0.65 | 0.001 | 1.26 |
| | | Economic satisfaction x Non-economic satisfaction | 0.04* | 2.27 | 0.012 | 1.64 |
| | | Supplier performance x Non-economic satisfaction | 0.04 | 0.79 | 0.002 | 2.04 |
| | | Supplier performance x Supplier development | -0.06 [a] | 1.65 | 0.009 | 1.20 |
| | | Supplier performance x Economic satisfaction | 0.02 | 0.35 | 0.000 | 2.28 |

*Notes: # Based on 1000 bootstrap samples. \*\*\*p<0.001   \*\*p<0.01   \*p<0.05 (Two-tailed test) [a]p<0.05  [b] p<0.10 (One-tailed test)   Effect size ($f^2$) measures the relevance of each predictor of a dependent latent variable based on coefficient of determination ($R^2$) when including or excluding a particular predictor from the model. Variance inflation factor (VIF) is the extent to which standard error has been increased due to the presence of collinearity. VIF values of 5 or higher indicate a potential collinearity problem (Hair et al. 2017). Size of farm enterprise, history of relationship and annual sales volumes were transformed into natural log before used for analysis.*

Table 5. Indirect effects

| Relationship | Indirect effect | t-value# |
|---|---|---|
| Supplier development (Economic satisfaction) Expectation of relationship continuity | 0.02 ns | 1.37 |
| Supplier development (Non-economic satisfaction) Expectation of relationship continuity | 0.05** | 3.23 |
| Supplier development (Supplier satisfaction) Expectation of relationship continuity | 0.10*** | 4.88 |
| Supplier performance (Economic satisfaction) Expectation of relationship continuity | 0.02 ns | 1.25 |
| Supplier performance (Non-economic satisfaction) Expectation of relationship continuity | 0.07*** | 4.01 |
| Supplier performance (Supplier satisfaction) Expectation of relationship continuity | 0.09*** | 4.46 |

*Notes: # Based on 1000 bootstrap samples.      \*\*\*p<0.001     \*\*p<0.01    \*p<0.05 (Two-tailed test)*

Table 6. Exploring discrepancies

| Groups | Percentage | Mean | Mean | Description |
|---|---|---|---|---|
| | | Economic | Non-economic | |
| Economic more than Non-economic | 29.1 | 5.82 | 3.79 | Frequencies of Economic satisfaction levels over, under, and in agreement with Non-economic satisfaction levels |
| In agreement | 44.4 | 5.38 | 4.98 | |
| Economic less than Non-economic | 26.6 | 4.38 | 5.12 | |
| | | Supplier performance | Supplier development | |
| Supplier performance more than Supplier development | 33.8 | 5.50 | 3.61 | Frequencies of Supplier performance levels over, under, and in agreement with Supplier development levels |
| In agreement | 34.0 | 4.82 | 4.68 | |
| Supplier performance less than Supplier development | 32.2 | 3.82 | 5.27 | |

Table 7. Regression results (n=444)

| | Model 1 Dependent variable Expectation of relationship continuity | | | Model 2 Expectation of relationship continuity | | | Model 3 Economic satisfaction | | | Model 4 Non-economic satisfaction | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | β | se | t-value | β | se | t-value | β | se | t-value | β | se | t-value |
| Constant | 4.23*** | 0.12 | 36.60 | 4.21*** | 0.09 | 48.66 | 4.88*** | 0.90 | 54.25 | 4.37*** | 0.11 | 40.11 |
| Supplier performance (SP) | | | | 0.20*** | 0.05 | 4.35 | 0.29*** | 0.05 | 5.92 | 0.33*** | 0.06 | 5.52 |
| Non-economic satisfaction (NS) | 0.25** | 0.08 | 3.21 | | | | | | | | | |
| Economic satisfaction (ES) | 0.24* | 0.10 | 2.36 | | | | | | | | | |
| Supplier development (SD) | | | | 0.67*** | 0.05 | 14.71 | 0.26*** | 0.05 | 5.44 | 0.20*** | 0.06 | 3.49 |
| ES X NS | 0.08[a] | 0.06 | 1.41 | | | | | | | | | |
| SP X SD | | | | -0.04 | 0.03 | 1.25 | -0.02 | 0.03 | 0.58 | 0.02 | 0.04 | 0.56 |
| $SD^2$ | | | | 0.04 | 0.03 | 1.35 | 0.003 | 0.03 | 0.91 | 0.02 | 0.04 | 0.49 |
| $ES^2$ | -0.01 | 0.05 | 0.10 | | | | | | | | | |
| $NS^2$ | -0.04 | 0.04 | 1.17 | | | | | | | | | |
| $SP^2$ | | | | -0.02 | 0.03 | 0.63 | -0.002 | 0.03 | 0.06 | -0.03 | 0.04 | 0.71 |
| | | | | | | | | | | | | |
| $R^2$ | 0.22 | | | 0.46 | | | 0.20 | | | 0.15 | | |
| $R^2$ adjusted | 0.21 | | | 0.45 | | | 0.19 | | | 0.14 | | |

Note: β Unstandardized coefficient, se Standard error

*\*\*\*p<0.001    \*\*p<0.01    \*p<0.05 (Two-tailed test)  [a]p<0.10 (One-tailed test)*

Table 8. Testing slopes and curves

| Effect | Model 1 | | | Model 2 | | | Model 3 | | | Model 4 | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | β | se | t-value | β | se | t-value | β | se | t-value | β | se | t-value |
| a1: Slope along x=y (as related to Z) | 0.49*** | 0.07 | 7.52 | 0.88[a] | 0.46 | 1.91 | 0.55*** | 0.05 | 10.52 | 0.53*** | 0.07 | 7.47 |
| a2: Curvature on x=y (as related to Z) | 0.03 | 0.04 | 0.75 | -0.02 | 0.05 | 0.31 | 0.24*** | 0.06 | 3.74 | 0.02 | 0.06 | 0.24 |
| a3: Slope along x=-y (as related to Z) | -0.02 | 0.17 | 0.11 | 0.47 | 0.46 | 1.01 | 0.03 | 0.08 | 0.35 | 0.12 | 0.09 | 1.31 |
| a4: Curvature on x=-y (as related to Z) | -0.14 | 0.10 | 1.35 | 0.06 | 0.05 | 1.20 | 0.28*** | 0.07 | 4.22 | -0.03 | 0.06 | 0.45 |

*\*\*\*p<0.001     \*\*p<0.01     \*p<0.05 (Two-tailed test)     [a]p<0.05 (One-tailed test)*
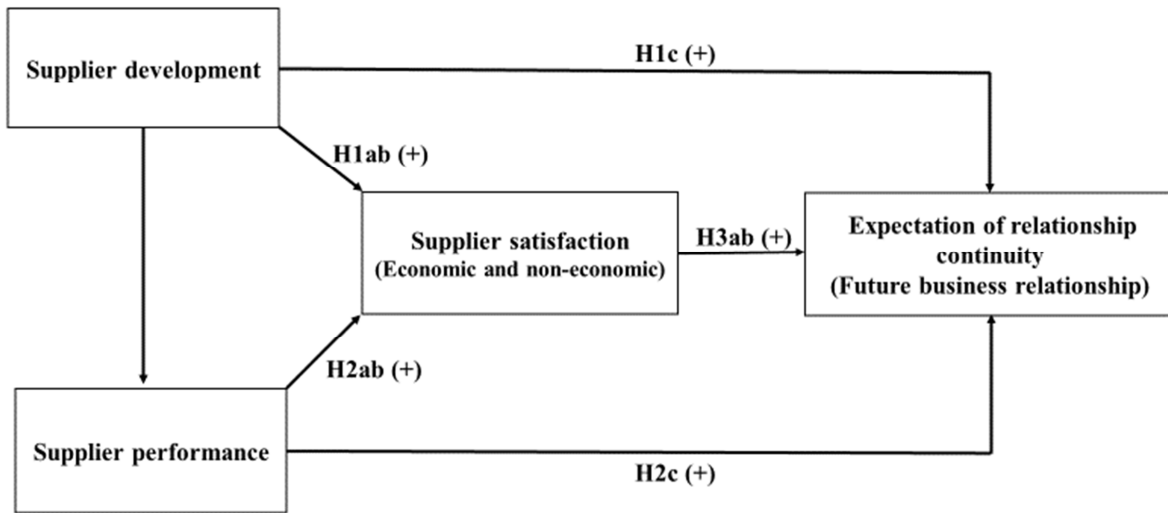
Figure 1: Research model
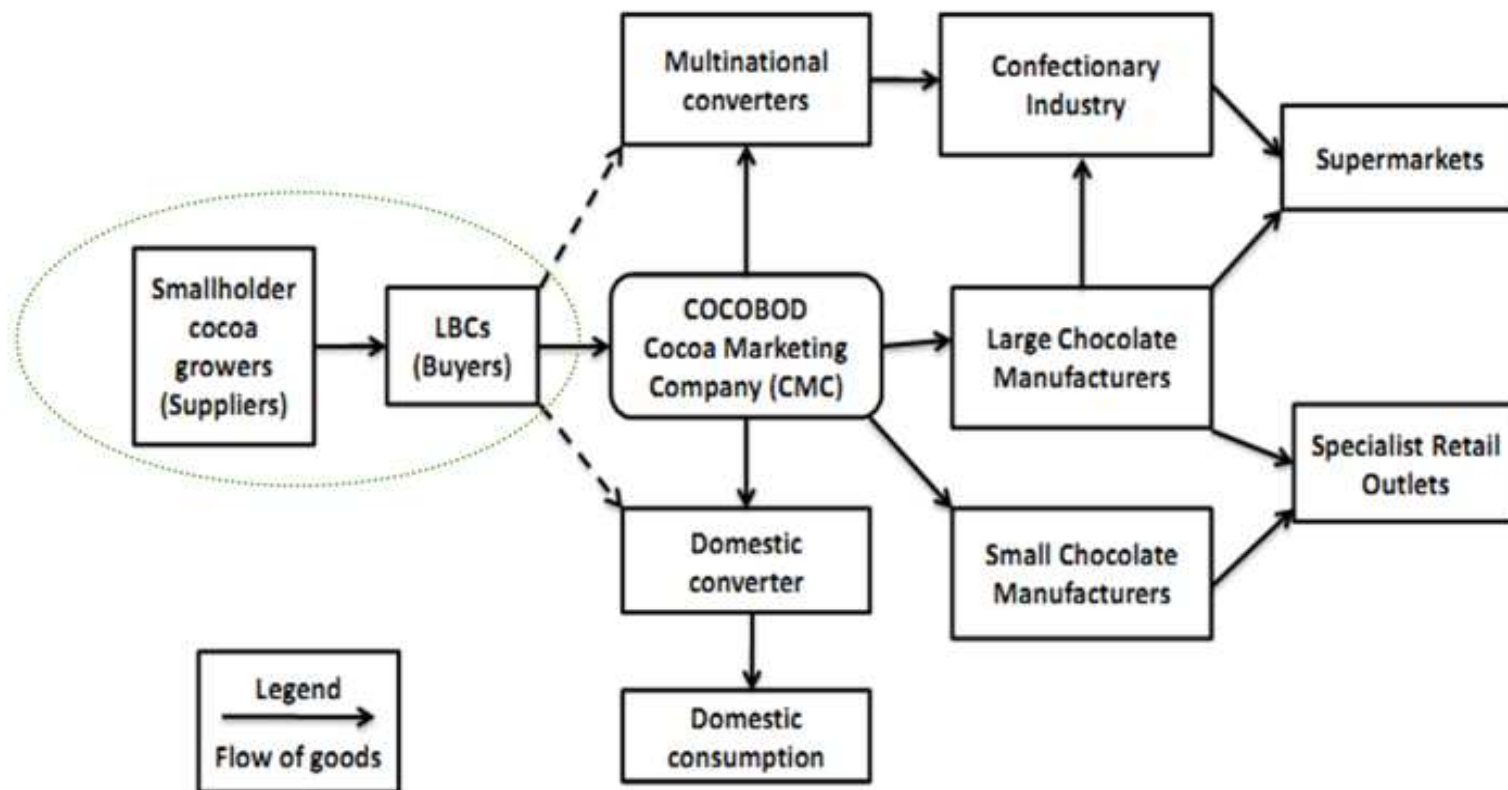
Figure 2: The Ghana cocoa supply/value chain as the research context

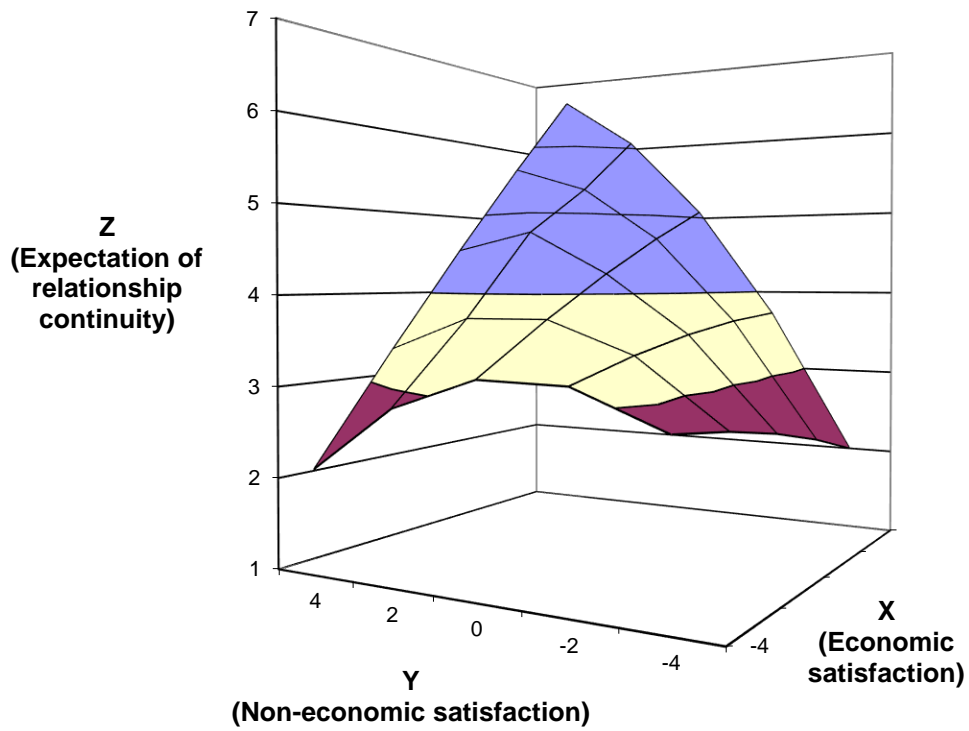**Expectation of relationship continuity as explained by Economic and Non-economic satisfaction**



Figure 3: Expectation of relationship continuity as predicted by perceptions of Non-economic and Economic satisfaction discrepancy
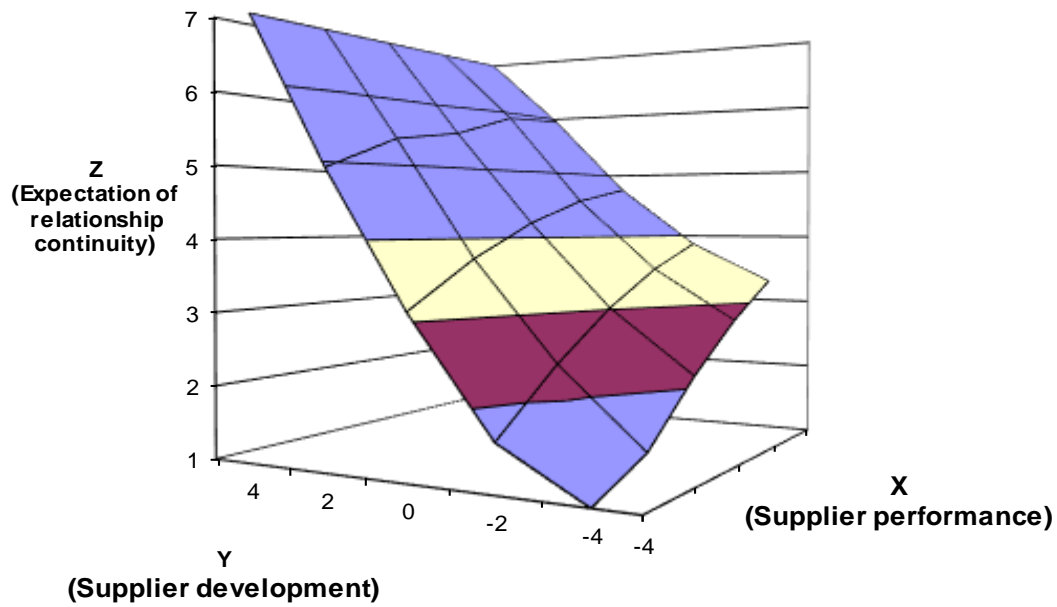
Figure 4: Expectation of relationship continuity as predicted by perceptions of Supplier development and Supplier performance discrepancy

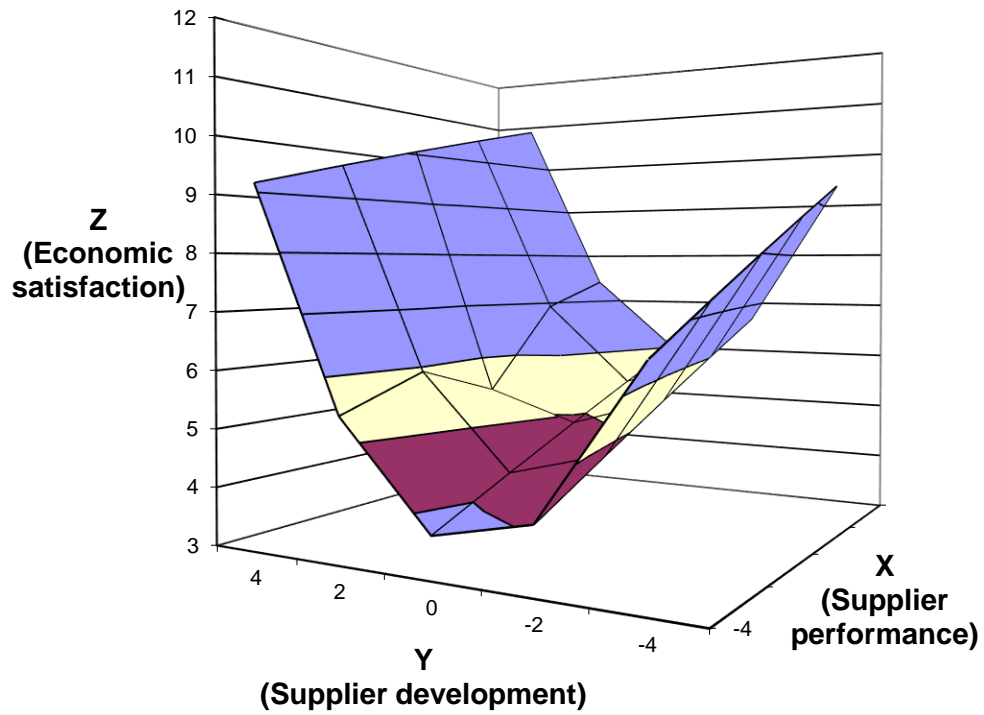**Economic satisfaction as explained by supplier performance and supplier development**



Figure 5: Economic satisfaction as predicted by perceptions of supplier performance and Supplier development discrepancy
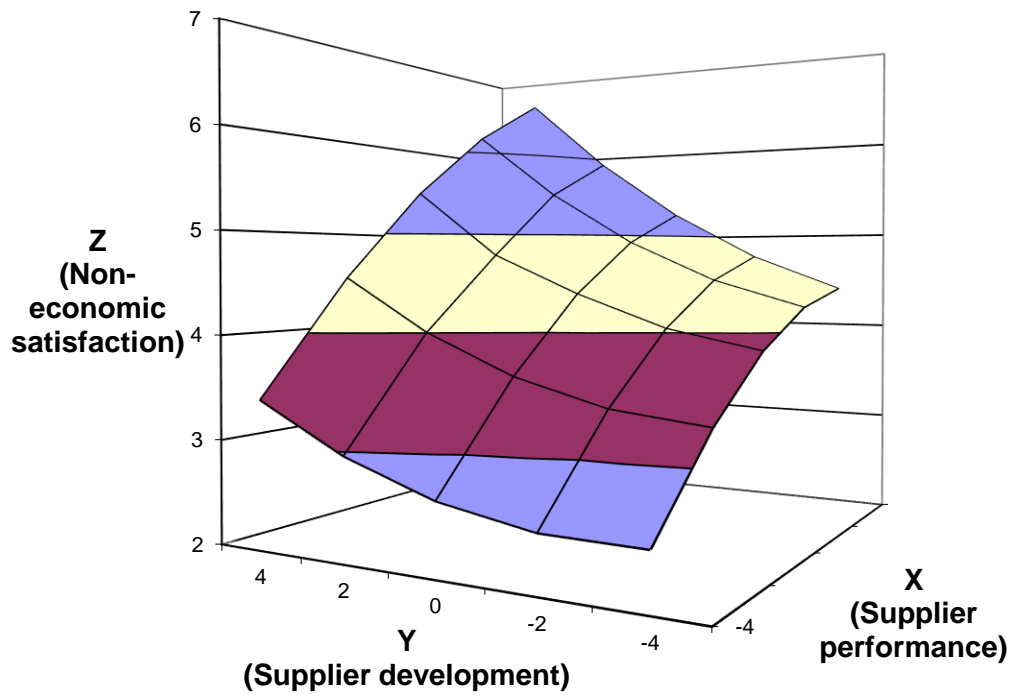
**Non-economic satisfaction as explained by supplier performance and supplier development**



Figure 6: Non-economic satisfaction as predicted by perceptions of supplier performance and supplier development discrepancy

**Highlights**

- The paper provides insights into supplier development.

- It links supplier development to performance, satisfaction and relation continuity.

- Supplier development significantly predicts the relationship continuity expectation.

- Post-hoc analysis based on polynomial regressions provide further understanding regarding economic, non-economic satisfaction and relationship continuity.