

CHAPTER 16

EFFECTIVE PARTNERSHIPS FOR AGRI-FOOD CHAINS

*The impact of supply-chain partnerships on supplier performance in the UK
fresh-produce industry*

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Abstract. This paper presents a framework of buyer–supplier relationships used in an empirical study to investigate how the development of more collaborative relationships between UK retailers and fresh-produce suppliers affects the financial performance of suppliers in such relationships. Relationships between key partnership characteristics and performance are discussed and empirically tested. In addition, multivariate analysis is used to identify the dimensions of buyer–supplier relationships that make the greatest relative contribution to the explanation of the performance construct.

INTRODUCTION

Traditionally, inter-organizational linkages between firms have been arm’s-length and often adversarial with individual firms seeking to achieve cost reductions or profit improvements at the expense of their buyers and/or suppliers. However, researchers, such as Lamming (1993) and Christopher (1998), state that successful companies recognize that the transfer of costs up and down the supply chain does not make firms any more competitive as ultimately all costs make their way back to the final marketplace. Instead firms that engage in co-operative long-term partnerships that help to improve the efficiency of the supply chain as a whole for the mutual benefit of all parties involved, are more likely to be successful.

The UK food industry has seen a concerted move in recent years towards fewer and more co-operative buyer–supplier relationships as retailers have attempted to gain more control over their supply chains. This has been done to ensure the integrity of their own label products, in terms of quality and safety issues, and to reduce supply-chain costs in an effort to increase their competitiveness in a highly competitive retailing environment (Fearne and Hughes 1999). These efforts have

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been accelerated in recent years by the introduction of Efficient Consumer Response (ECR), which promotes the development of collaborative partnerships between retailers and suppliers (Mitchell 1997; Fiddis 1997).

ECR is based on the premise that many business practices and attitudes within the food industry are counter-productive, with firms seeking to maximize their own efficiency and profitability by passing problems and costs up or down the supply chain to their trading partners. Therefore, the fundamental aim of ECR is to apply a total systems view and encourage firms to work together to remove unnecessary costs from the supply chain and to add value to products by identifying and responding to consumer needs more effectively (Mitchell 1997; Fiddis 1997; Lamey 1996). Because ECR relies on a seamless flow of information throughout the supply chain, the benefit of ECR is dependent on a move away from traditional confrontational relationships to relationships based on co-operation and trust (Wood 1993; IGD ECR Methodology Approach Group 1996; Fiddis 1997; Mitchell 1997).

In the food industry partnerships have been promoted as offering mutual benefits to both retailers and suppliers. However the publicized benefits have referred primarily to the supply chain as a whole or to the retailer's operations (IGD ECR Methodology Approach Group 1996; Coopers and Lybrand 1996). In addition, anecdotal evidence that does exist in the food industry refers primarily to relationships between retailers and large branded manufacturers (Harlow 1994; Pearce 1997; Fiddis 1997; Mitchell 1997). As such there is virtually no evidence of the status or outcomes of partnership developments with suppliers in unbranded commodity sectors, such as fresh meat and fresh produce (e.g. fresh fruit, salads and vegetables).

Although moves towards more co-operative buyer-supplier relationships are evident in the food industry and much has been written about the creation of such partnerships in the extant literature, research that has investigated what these partnerships entail and that has examined the outcomes of these relationships is limited. This lack of research has been highlighted by researchers such as Stuart (1993), who notes, "empirical evidence of the benefits of partnerships is scant and primarily limited to the automotive industry". Similarly Heide and Stump (1995) state, "empirical evidence regarding performance is virtually non-existent and although recent evidence suggests that co-operative forms of buyer-supplier relationships are becoming increasingly common no study to date has formally examined their implications". More recently several other researchers have also commented on the lack of research regarding the performance outcomes of partnerships (e.g. Kalwani and Narayandas 1995; Sheth and Sharma 1997; Cannon and Homburg 2001).

To our knowledge there seems to be a complete lack of any UK research that attempts to quantify the outcomes of moves to greater collaboration between food retailers and their suppliers. These deficiencies in research suggest that an empirical investigation of the nature of buyer-supplier relationships and their implications for performance will make a useful contribution to both inter-organizational theory in general and our understanding of retailer-supplier partnerships in the UK food industry in particular.

Therefore, this research investigates how partnerships between UK food retailers and suppliers affect the financial performance of suppliers. The views of suppliers are of particular interest as most suppliers are developing their relationships in response to their retail customer's demands for increased service. As partnerships require suppliers to make substantial investments in terms of time and financial resources the costs of engaging in closer relationships, such as those promoted by the ECR initiative, could outweigh the benefits of doing so, particularly in commodity sectors which consist of many small and medium-sized businesses that typically operate on tight margins (Fearne and Hughes 1999).

THE CONCEPTUAL FRAMEWORK

The framework used to investigate buyer–supplier relationships was developed from two key disciplinary orientations in channel theory: the behavioural approach and the political economy paradigm.

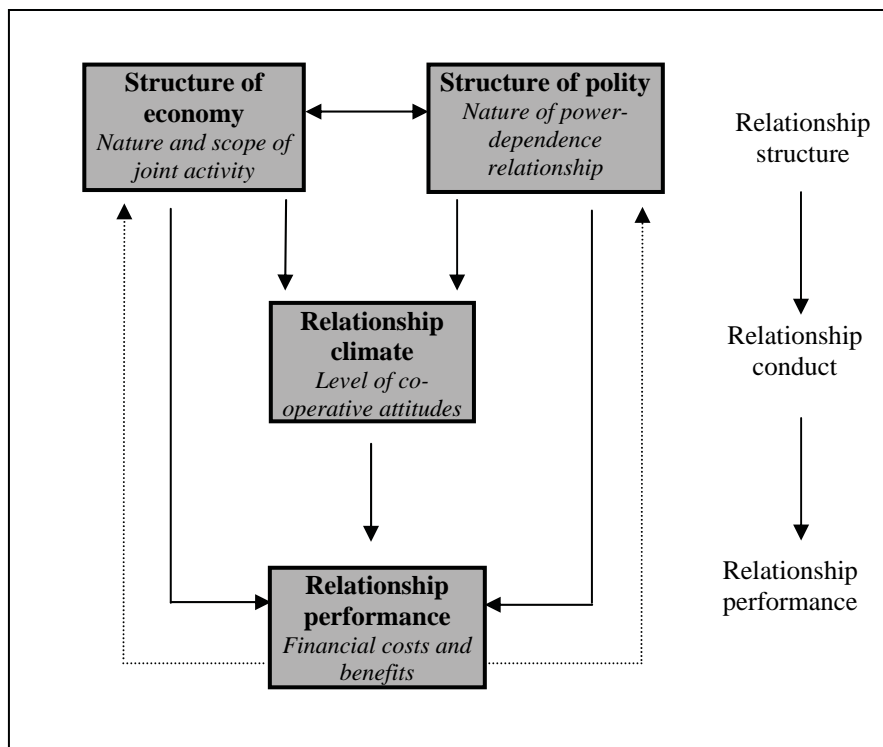


Figure 1. Theoretical framework for investigating buyer–supplier relationships

Building on the empirical work of Reve and Stern (1986) and the conceptual work of Robicheaux and Coleman (1994), who took a behavioural approach to the

traditional structure–conduct–performance relationship, the premise of the model (Figure 1) is that the structural elements of a buyer–seller relationship, such as activities and information flows, measured in the internal economy, and the nature of the power–dependence relationship, measured in the internal polity, influence each other but also influence the dominant attitudes and sentiments in the relationship and the performance outcomes achieved. Each part of the framework is briefly discussed in the following sections. For a full discussion regarding the development of the model and its validation see Duffy and Fearne (2002).

Conceptualization of the structure of the economy

The internal economy is defined in terms of the types of activities, resources and information flows that are used to support and co-ordinate the operation of the buyer–supplier relationship (Arndt 1983; Reve and Stern 1986; Robicheaux and Coleman 1994; Cannon 1992). As such, the economy is conceptualized as existing on a continuum representing the more tangible and observable aspects of relationships. At one end, firms engage in low levels of joint activities and have low levels of operational integration and at the other they engage in high levels of joint activities and have high levels of operational integration.

Conceptualization of the structure of the internal polity

The internal political structure is conceptualized as the level and nature of interdependence that exists in a relationship (Kumar et al. 1995). Researchers state that a comprehensive view of interdependence must encompass both asymmetry and magnitude of interdependence as both describe the socio-political structure of a channel relationship (e.g. Kumar et al. 1995; Frazier and Antia 1995; Geyskens et al. 1996). Therefore an examination of the relationship polity directs attention to the level of total interdependence in the relationship (i.e. the sum of both firms' dependence) and the level of dependence asymmetry in the relationship (i.e. the difference in the firms' dependence scores).

Conceptualization of the climate

The climate examines the dominant attitudes and sentiments that exist in a buyer–supplier relationship (Reve and Stern 1986). In line with Reve and Stern (1986) researchers such as Stern and Reve (1980) and Skinner et al. (1992) suggest that conflict and co-operation are the two dominant sentiments that regulate exchange relationships.

Four theoretical constructs are used to capture whether the dominant attitudes and sentiments in relationships are co-operative or adversarial in nature. These are trust, commitment, relational norms and functional conflict resolution methods, which are constructs that indicate the presence of co-operative behaviour directed towards collective as opposed to individual goals (Dwyer et al. 1987; Anderson and Narus 1990; Heide and John 1992; Morgan and Hunt 1994; Anderson et al. 1994;

Cannon and Perreault 1997; Sigauw et al. 1998). Functional conflict resolution is measured instead of measuring the level of conflict in a relationship as researchers suggest that conflict is not always detrimental to a relationship (e.g. Robicheaux and El-Ansary 1976; Michie and Sibley 1979). Instead it is the manner in which partners resolve conflict that has implications for partnership success (Mohr and Spekman 1994).

Conceptualization of performance

The aim of this part of the framework is to examine the financial costs and benefits associated with different forms of buyer–supplier relationships. Because the focus of this study is concerned with the impact of partnerships on supplier performance, performance is viewed from the perspective of individual channel members. More specifically, the focus of performance concerns the supplier’s overall view of the performance outcomes of a specific customer relationship. This view is taken because suppliers often have many customers. As such it would be difficult to isolate the impact of any individual relationship on overall performance at the firm level.

HYPOTHESIZED RELATIONSHIPS

Each of the three key dimensions of buyer–supplier relationships in Figure 1 are hypothesized as being key influences on performance. A brief review of the literature is given to support the hypothesized relationships between each of the constructs in the model and performance. It should be noted that each of these three dimensions was found to exist in higher amounts in relationships classified as partnerships, as opposed to arm’s-length relationships (Duffy and Fearn 2002). Therefore the overriding hypothesis in the model is that partnerships improve performance.

The relationship between the internal polity and performance

In general, researchers suggest that the higher the level of interdependence in a relationship the better the implications for performance. For example, Mohr and Spekman (1994) and Gattorna and Walters (1996) suggest that the essence of successful partnerships is the extent of interdependence between the partners. Several other researchers also suggest that high bilateral dependence is related positively to performance (e.g. Anderson and Narus 1991; Buchanan 1992; Kumar et al. 1995; Lusch and Brown 1996).

With regard to the nature of asymmetry in the relationship, the dependence literature does not offer unambiguous performance implications. Instead two points of view exist regarding the relationship between dependence and performance; they are referred to as the opportunistic and benevolent perspectives (Gundlach and Cadotte 1994). The opportunistic perspective suggests that a dependence advantage will manifest exploitative tendencies. That is, the possession of more power (i.e. less

dependence) will encourage action to gain a disproportionate share of resources from a less powerful partner (Beier and Stern 1969; Buchanan 1986; Noordewier et al. 1990; Gundlach and Cadotte 1994). On the other hand, the benevolent perspective emphasizes co-operative exchange as those with the greatest power are able to manipulate other members to act in ways that achieve greater positive results for the whole system (Beier and Stern 1969). Although there are a number of views on the relationship between the structure of interdependence and performance two hypotheses are posited from the literature.

- H1(a). Suppliers in buyer–supplier relationships characterized by greater interdependence achieve higher levels of performance.
- H1(b). Suppliers in buyer–supplier relationships characterized by greater dependence asymmetry achieve lower levels of performance.

The relationship between the internal economy and performance

Numerous articles routinely exhort both customer and supplier firms to seek collaborative relationships with each other as a way of improving performance. For example, Spekman (1988) states that in an attempt to gain greater competitive advantage, buyers are forging closer, more collaborative relationships with a smaller number of vendors. Similarly, Mohr and Spekman (1994) suggest that more successful partnerships exhibit higher levels of co-ordination than less successful partnerships, while Narus and Anderson (1987) suggest that successful working partnerships are marked by co-ordinated actions directed at mutual objectives across organizations. Kalwani and Narayandas (1995) also suggest that suppliers in long-term, closer relationships achieve a higher level of sales growth and profitability compared to supplier firms that used a transactional approach to servicing customers. Therefore the following hypothesis is posited:

- H2. Suppliers engaging in buyer–supplier relationships characterized by higher levels of collaborative activity achieve higher levels of performance.

The relationship between climate and performance

The importance of variables such as trust and commitment are highlighted in the food industry initiative ECR, which emphasizes that the benefit of joint working between retailers and manufacturers would only be fully realized if there was a move away from confrontational relationships to relationships based on co-operation, openness and trust (Fiddis 1997; Mitchell 1997).

In the inter-organizational literature commitment and trust are frequently highlighted as key mediating variables that contribute to relationship success in terms of efficiency, productivity and effectiveness (e.g. Noordewier et al. 1990; Sherman 1992; Anderson and Weitz 1992; Morgan and Hunt 1994; Mohr and Spekman 1994; Gundlach et al. 1995; Sigauw et al. 1998). Researchers also suggest

a positive relationship between the existence of relational norms and performance (Lusch and Brown 1996; Siguaw et al. 1998) and suggest that conflict can be productive for the relationship if disputes are resolved amicably (Anderson and Narus 1990; Morgan and Hunt 1994; Mohr and Spekman 1994). The hypothesized relationship between the climate and performance is posited as:

- H3. Suppliers in buyer–supplier relationships characterized by higher levels of co-operative attitudes and sentiments achieve higher levels of performance.

METHODOLOGY

Data collection

Data were collected via a questionnaire sent to the managing directors of 337 fresh-produce suppliers who supplied food retailers or food service companies directly. The survey was administered in March 2001 and a total of 173 questionnaires were returned. Of these, 155 were deemed usable, resulting in a usable response rate of nearly 46 percent.

Suppliers were instructed to answer the questionnaire in relation to the customer with whom they had been doing business for the longest period of time. This was done to increase the likelihood that suppliers commented on a relationship that was properly formed and had established patterns of behaviour (Leuthesser 1997). The decision to specify the customer about whom suppliers should comment was made as Ellram and Hendrick (1995) suggest that if the decision is left to the supplier, the results will be biased in favour of high-performing relationships as given the choice, suppliers are most likely to pick their best customer relationships to discuss. It was believed that the selection of high-age group relationships would not bias the responses towards relationships with more partnership characteristics, as researchers such as Leuthesser (1997) and Blois (1996; 1997) state that the established patterns of behaviour in the relationship may or may not be relational in nature. This belief was supported by the results of an ANOVA analysis, which showed that there were no significant differences in any of the variables in the study when relationships were grouped according to age (Duffy and Fearn 2004).

Measures used

All theoretical constructs were measured using multiple item scales. The structure of the economy was measured using a 22-item scale designed to capture the task-related flows of activities, resources and information in a relationship. The structure of the polity was measured using parallel multiple-item scales; one to measure the supplier's view of its dependence on the chosen customer and the other to measure the supplier's view of their customer's dependence on their own firm. This method for measuring interdependence has been suggested and used in several previous

studies (e.g. Buchanan 1992; Kumar et al. 1995; Lusch and Brown 1996; Frazier and Antia 1995; Geyskens et al. 1996).

To measure the dominant attitudes and sentiments in the exchange separate scales were developed to measure levels of trust, commitment, relational norms and functional conflict resolution methods. Trust was measured using a four-item scale that captured trust in a partner's honesty and trust in a partner's benevolence (Kumar et al. 1995). Commitment was measured using three items that captured the attitudinal and temporal components of commitment (Kumar et al. 1995; Wilson and Vlosky 1998). Relational norms were measured using eight items that measured four norms most frequently used to operationalize the construct of relationalism. These were solidarity, flexibility, mutuality and information exchange (e.g. Kaufmann and Stern 1988; Noordewier et al. 1990; Gundlach et al. 1995; Dant and Schul 1992; Heide and John 1992; Lusch and Brown 1996). Functional conflict resolution was measured using items that identify whether problems are resolved amicably or by resorting to threats using items drawn from previous studies (Salmond 1987; Gundlach et al. 1995; Morgan and Hunt 1994).

Finally, performance was measured using nine items that captured commonly cited benefits of partnerships. These items measured whether there had been a reduction in costs and a sharing of realized benefits (IGD ECR Methodology Approach Group 1996; Fiddis 1997; Mitchell 1997) and changes in sales and profits which Frazier et al. (1988) and Nielson (1997) suggest are the most important outcomes of partnerships. In addition, items were developed which captured the supplier's beliefs and expectations regarding the future prospects for the relationship and its future viability, as Woo and Willard (1983) and Stern and El-Ansary (1992) suggest that performance cannot be measured solely by past or current levels of sales and profitability, but should also include indicators of how the firm will do in the future.

Validation and modification of measures

Prior to the questionnaire being sent, all measures were reviewed by a panel of academic specialists in the area of fresh produce and buyer-supplier relationships and by a group of industry executives. This review resulted in minor changes to the wording of some questions.

After the data had been collected all measures were tested for their reliability and validity, using Cronbach's alpha and factor analysis. A factor analysis of each multiple item scale identified ten distinct and separate inter-organizational constructs that were used in all subsequent statistical analyses. These had alpha values ranging from 0.63 to 0.93, indicating that all scales were reliable (Duffy and Fearn 2002). These are listed in Table 1.

Table 1. Key dimensions of buyer–supplier relationships

Construct	Description
Economy	Sum of economy factors 1 to 4
Economy factor 1	Focus on supply-chain efficiency
Economy factor 2	Exclusive offerings
Economy factor 3	Scope and level of communication and joint activities
Economy factor 4	Involvement in decisions and planning
Polity	Total interdependence and dependence asymmetry
Total interdependence	Supplier dependence + customer dependence
Dependence asymmetry	Supplier dependence - customer dependence
Climate	Sum of climate factors 1 to 3
Climate factor 1	Trust and relational norms
Climate factor 2	Commitment
Climate factor 3	Functional conflict resolution methods
Performance	Sum of performance factors 1 and 2
Performance factor 1	Future growth
Performance factor 2	Current costs and sales

RESULTS

The data were analysed in three parts. Firstly, the hypotheses were tested using three regression models that estimated the separate influence of the economy, the polity and the climate on performance. Secondly a regression model was estimated that used all the theoretical constructs in their factor form to identify the joint predictive power of all of the variables in the framework. In addition, this model was used to determine the relative importance of each independent variable in the prediction of performance.

Hypothesis testing

Three regression models were estimated to test the hypotheses. Prior to conducting the regressions the data for each of the individual variables were checked to ensure that they met the general assumptions of normality, linearity and homoscedasticity that underlie multivariate analyses (Hair 1998). The results of these tests indicated that no serious violations of these assumptions existed in the data set (Duffy 2002).

The results of the separate regression models for the economy, climate and polity (models 1 to 3) are shown in Tables 2 and 3. Table 2 compares the three models in terms of the amount of variance that the construct accounted for as a whole, while

Table 3 shows the individual impact of the underlying dimensions of each construct on performance.

Table 2. Total variance in performance accounted for by regression models 1 to 3

Model	Variables in the model	R ²	Adj. R ²	SEE	F	Sig.
1	Economy: Factors 1-4	0.43	0.41	0.45	27.956	0.000**
2	Climate: Factors 1-3	0.64	0.64	0.35	90.906	0.000**
3	Polity: Total interdependence Dependence asymmetry	0.19	0.17	0.53	17.259	0.000**

Table 3. Impact on performance of the variables in regression models 1 to 3

Model	Variables in the model	β	T	Sig.
1	Constant		8.172	0.000**
	Economy factor 1	0.103	1.280	0.202
	Economy factor 2	0.014	0.220	0.826
	Economy factor 3	0.109	1.383	0.169
	Economy factor 4	0.513	6.232	0.000**
2	Constant		2.310	0.022*
	Climate factor 1	0.406	6.215	0.000**
	Climate factor 2	0.428	7.418	0.000**
	Climate Factor 3	0.144	2.535	0.012*
3	Constant		8.229	0.000**
	Total interdependence	0.360-0.277	4.884	0.000**
	Dependence asymmetry		-3.761	0.000**

**P<0.01, *P<0.05

Economy factor 1 = Focus on supply-chain efficiency, **Economy factor 2** = Exclusive offerings, **Economy factor 3** = Level and scope of communication and joint activities, **Economy factor 4** = Involvement in decisions and planning, **Climate factor 1** = Trust and relational norms, **Climate factor 2** = Commitment, **Climate factor 3** = Functional conflict resolution

Table 2 shows that on their own the factors that represent the economy construct accounted for 41.2 percent of the variance in the performance construct. Therefore, the results support the hypothesis that collaborative activity is positively related to performance. The results in Table 2 also indicate that of the four factors that represent the economy, factor 4 (involvement in decision making and planning) accounts for the greatest amount of variance in performance.

Model 2 shows that the factors that make up the climate significantly accounted for 63.7 percent of the variance in the performance variable (Table 2). Therefore hypothesis 3 is supported. An examination of the beta values in Table 3 shows that commitment was the best predictor of performance, followed by trust and relational norms, functional conflict resolution.

Finally, model 3 shows that the structure of interdependence significantly accounts for 17.4 percent of the variance in performance. Table 3 shows that dependence asymmetry has a significant negative relationship with performance, while total interdependence has a significant positive relationship with performance. Therefore the results support hypotheses 1(a) and 1(b). According to the beta values total interdependence explained more of the variance in performance than dependence asymmetry.

Identifying the key influences on performance

A regression model was also estimated using all the theoretical constructs in their factor form to identify which aspects of buyer–supplier relationships in the framework have the greatest influence on performance. Table 4 shows that together the nine variables significantly explained 64.2 percent of the variation in the performance variable. However, only four variables explained a significant amount of variation in the performance construct when all the variables in the framework were considered simultaneously (Table 5).

Table 4. Total variance in performance accounted for

Model	R ²	Adj R ²	SEE	F	Sig.
4	0.66	0.64	0.35	31.625	0.000

Table 5. Impact on performance of individual variables

Variables in the model	β	T	Sig.
Constant		1.366	0.174
<i>Economy factors</i>			
Supply-chain focus	-0.004	-0.063	0.950
Exclusive offerings	-0.061	-1.104	0.272
Frequency/scope: communication/joint activities	0.009	0.125	0.900
Involvement in decisions/ planning	0.157	1.988	0.049*
<i>Climate factors</i>			
Trust and relational norms	0.318	3.894	0.000**
Commitment	0.380	5.782	0.000**
Functional conflict resolution	0.129	2.269	0.025*
<i>Polity factors</i>			
Total interdependence	0.079	1.291	0.199
Dependence asymmetry	-0.007	-0.119	0.905

**P<0.01, *P<0.05

Table 5 shows that of the four significant predictors, two variables (trust and relational norms and commitment) were significant at the 0.01 level and two

variables (involvement in decisions and planning and functional conflict resolution) were significant at the 0.05 level. Using the beta coefficients to compare the impact of each variable it can be seen that commitment accounted for the most variance in performance, followed by trust and relational norms, involvement in decisions and planning and finally the level of functional conflict resolution methods. Therefore, the results indicate that the sentiments and attitudes that underlie the exchange are more significant indicators of performance than the structural dimensions of relationships. The interpretation of the results could have been distorted by multicollinearity in the data set but, following recommendations by Gujarati (1992), a series of auxiliary regressions carried out on the set of independent variables showed that the level of multicollinearity in the set of independent variables was low (Duffy 2002).

CONCLUSIONS

The results provide support for the theory that partnerships can help a firm to improve its performance. This conclusion is based on the fact that each of the main partnership dimensions in the theoretical framework had a significant and positive relationship with performance. The exception was the relationship between dependence asymmetry and performance, which had a negative relationship as predicted and indicates that power imbalances have a detrimental effect on the sharing of partnership benefits. The results also showed that when considered together the variables in the framework significantly accounted for over 64 percent of the variation in performance. Although causality cannot be inferred from these results the research contributes to the body of knowledge that implies that partnerships can help a firm to improve its performance.

The results also showed that commitment and trust and relational norms had the greatest predictive ability in the multiple-regression analysis, followed by functional conflict resolution and involvement in decisions and planning. Therefore it is concluded from this research that while all three constructs in the framework are significant indicators of performance it is the softer, more intangible, aspects of buyer-supplier relationships that are the more reliable explanatory variables for performance.

This study contributes to inter-organizational theory as it provides empirical evidence of the performance implications of partnerships, which have been severely lacking in the literature. In particular, it has answered the calls of researchers such as Heide and John (1988), Heide and Stump (1995) and Kalwani and Narayandas (1995), who have stressed the need for empirical research that examines the outcomes of closer relationships and partnerships, particularly on the performance of supplier firms.

The finding that the attitudes and sentiments that exist in the buyer-supplier relationships have the greater relative influence on performance highlights the importance of the legally binding code of practice that has been introduced by the UK Competition Commission to govern relationships between retailers and their suppliers in the food industry (Competition Commission 2000). This code of

practice was introduced after the Competition Commission found evidence that retailers had been abusing their position of power in the industry and engaging in a number of buying practices that adversely affected the competitiveness of suppliers. They found that this had resulted in a 'climate of apprehension' among many suppliers, many of whom would not identify the offending parties for fear of reprisals. This research suggests that by encouraging the development of co-operative attitudes, the code of practice will help to ensure that the benefits to suppliers increase and that they do not receive an unfair portion of the costs associated with exchange.

As this research is one of the first attempts to investigate the outcomes of different types of buyer-supplier relationships in the fresh-produce industry, it provides an important platform for further research in the area. In particular, as the inter-organizational variables in the theoretical framework accounted for a substantial and significant amount of the variation in the performance of suppliers, the framework developed in this study could be used as the basis for future empirical studies. However, further research is needed to gain a more complete understanding of the dynamics of successful customer relationships and the realities of forming collaborative partnerships in a low-margin commodity sector. To do this requires additional forms of research such as case studies, which would explore the inter-organizational variables in more detail. Ideally these should involve speaking to both the retailer and the supplier. Whilst this was not considered to be a viable option for empirical research in the food industry, it should prove to be more feasible using a case-study approach.

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