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Relational Ties and Transaction Costs – The Moderating Role of Uncertainty

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Abstract

Relational governance is argued by many authors to positively affect performance exchange between business partners. Investigating the supplier side of the dyad, this study focuses on the effect of behavior uncertainty on the relationship between relational exchange supported by trust and the outcome of the exchange—negotiations and monitoring costs that occur during bargaining and *ex post* arrangements. Moderated multiple regression analyses is employed to test the model on primary data collected from a sample of 170 Albanian farmers engaged in cultivation and collection of medicinal aromatic plants. Findings show empirical support for the proposition that the adoption of relational exchange lowers *ex post* transaction costs. It also demonstrates that behavior uncertainty acts as a quasi-moderator, wherein it impacts both directly and indirectly the *ex post* transaction costs. The role of uncertainty in shaping relational ties, outcomes, and implications is further discussed.

Keywords: relational exchange, trust, transaction cost, behavior uncertainty

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Introduction

The trend in governance has been switching toward the adoption of bilateral tools of governance (Heide 1994) that circumscribe the contracting parties' relationship, including tacit and explicit arrangements, limiting opportunistic behavior. This bilateral approach to governance has been described as strategic alliances (Achrol 1991), hybrids (Williamson 1991), joint action (Heide and John 1990), vertical coordination (Buvik and John 2000) and relational exchange (Dwyer et al. 1987). As argued by Williamson (1985), the governance structure that a firm adopts will depend largely on the costs of a specific transaction.

Relational governance, as one of the "specialized" forms of governance, is a viable alternative to market or hierarchical governance in many sectors, since managers and entrepreneurs can engage in collaborative exchanges (Dyer 1996). Repeated exchange protects against transaction hazards by allowing exchange partners to adopt a cooperative behavior based on whom to trust (Poppo and Zenger 2002). The use of such informal arrangements that rely on social mechanisms and non-contractual safeguards is widespread in the Albanian agriculture sector characterized by small scale farming. As noted by Nooteboom (1999), small farms rely more on reputation mechanisms instead of detailed, formal contracting. Transaction between Albanian farmers and their buyers are usually decided through bargaining based on reputation and trust mechanisms. Hence, business partners are expected to show flexibility during *ex post* arrangements. As argued by Master et al. (2004), relational governance relies on a significant degree of flexibility since the social and economic mechanisms can increase adaption.

However, there is some degree of risk in such relationships. Ring and Van de Ven (1992) argues that in dyadic business relationships, one of the partners may have given more than received, increasing the likelihood for partners to engage in monitoring and/or use formal safeguards. The need to be treated fairly can seriously affect the relationship between the partners (Das and Teng 2001, Ring and Van de Ven 1992) and finally, the outcome of such relationship. Das and Teng (2001) argue that inequities regarding payoffs in alliances may lead to relational risk. Hence, relational exchange largely based on trust (Poppo and Zenger 2002) can be undermined by the uncertainty related to the business partner behavior.

Following the call by Dwyer et al. (198, 28), many researchers agree that "trust deserves priority attention," with particular focus to how it affects channel member relationship and its outcomes, such channel satisfaction and commitment (Geyskens et al. 1998). In their meta-analysis, the authors conclude that the interaction between trust, economic outcomes and uncertainty should be further explored. On this regard, a negative relationship between uncertainty and trust has been argued by some authors (e.g. Joshi and Campbell 2003, Heide and John 1990). Trust is considered to strengthen relational ties (Chiles and McMackin 1996) reducing opportunism (Zaheer and Venkatraman 1995). Controversially, Masters et al. (2004, 61) argue that "relational contracting would add an additional risk of opportunism and thus higher risk propensity is necessary for closer ties between firms to develop". Given the relational nature of exchange in Albanian agriculture sector, farmers' uncertainty and perceived risk regarding buyers' behavior might undermine the reputation and trust mechanisms that constitute the "building blocks" of the relational ties created with their buyers. It can be argued that such uncertainties might lead to

opportunistic behavior and higher levels of transaction costs. This study aims to investigate the role behavior uncertainty plays in shaping relational exchange and its' outcome.

As underlined by Geyskens et al. (2006), there is lack of research on the effect that relational ties, largely represented by trust, have on firms' performance. Some authors (e.g., Buvik and John 2000) argue that in order to define the level of vertical coordination, a focus on *ex post* transaction costs such renegotiation and monitoring as a performance measure of the transaction is required. Such focus becomes more important considering Williamson's (1991) argument that relational governance addresses uncertainty less effectively than market governance, since it requires mutual consent between channel members. Considering that *ex post* arrangements are very frequent in Albanian agriculture sector and the role of uncertainty in undermining trust, this paper builds on transaction cost reasoning and evaluates the direct effect behavior uncertainty on *ex post* transaction costs and moderating effect of behavior uncertainty on the relationship between relational governance and *ex post* transaction costs. Our model is empirically tested in the Medicinal and Aromatic Plant (MAP) sector, one of the most important, and export-oriented sectors in Albania, a post-communist transition country with weak institutions, by using data collected through interviews with farmers. This paper aims to provide both practical and theoretical contributions. In practical terms, insight into the role of behavior uncertainty in shaping relational exchange represents useful information for managers of exporting companies in building sustainable relationships with their supply base.

More generally, our paper responds to Geyskens et al. (2006, 17) call for "greater effort to understand the influence of governance choice on performance". Furthermore, the majority of studies have focused on the buyer side of the dyad (Geyskens et al. 1998). This paper focuses on the supplier's side, examining the impact of relational ties on perceived transaction costs and looking at the direct and moderating effect of behavior uncertainty.

Rationale

According to Williamson (1975), the existence of opportunism gives rise to transaction costs in the form of monitoring behavior and safeguarding of assets. High uncertainty makes it more difficult for the buyer to evaluate the supplier's actions, and high asset specificity makes supplier decisions potentially risky for the buyer. Reducing opportunism and the transaction costs associated with it, is recognized to be a key purpose of transaction governance (Stump and Heide 1996).

Transaction costs incorporate the *ex ante* costs, such as obtaining relevant information, negotiating, and safeguarding the contract, as well as *ex post* costs, such as monitoring and enforcing the contract. The basic premise of transaction cost theory (TCT) states that the cost of doing transactions could be too high under certain conditions. In such cases, when the transaction costs are high, organizing the economic transaction within the firm or hierarchy governance structure might be superior to organizing it as a market-based governance structure (Williamson 1975). Hybrid forms of governance, considered as "specialized" forms of governance (Heide 1994, Williamson 1985), customize particular supplier-buyer relationships to overcome some of the costs and inefficiencies related to both market and hierarchy governance structures.

The proposition that increasing transaction costs leads to vertical integration or other hybrid forms of governance has received support in the literature (Geyskens et al. 2006). In her empirical study on cattle and beef supply chain, Hobbs (1996) identified a strong relationship between monitoring costs and the selection of beef supply channel(s). The analysis suggests that the monitoring costs processors incur through auctions and occasional supply relationships with individual producers may become so high that they will increase pressure from downstream firms to move toward closer forms of vertical coordination. Investigating China's pork chain, Jiet al. (2012) concluded that transaction costs and "collaboration advantages" are the two factors determining the slaughtering and processing companies' decision to choose more stable governance structures. Using a case study approach, Weseen et al. (2014) focused on ethanol plants manager and buyers representing different sectors such grain products, livestock, and biofuel and confirmed that transaction costs are both a determinant of hybrid and hierarchical forms of governance and an outcome of such specialized governance structures. It appears the more channel members are faced with higher transaction costs, the more they opt for some form of coordination or instruments to govern exchange relationships.

The challenges facing the food industry in tackling uncertainty and risk in order to reduce transaction costs are being met in part through an array of contractual arrangements, such as partnerships that aim to achieve greater vertical coordination (Hughes 1994). Contracting is often seen as an instrument to govern some of these intermediate forms of governance. TCT predicts that as exchange hazards rise, so must contractual safeguards (Williamson 1985), which tend to minimize the costs arising from such hazards (Macneil 1978). Although standardized contracting is one instrument to overcome the problems of uncertainty and opportunistic behavior (Hughes 1994), crafting a complex contract might end up being expensive. Empirical studies demonstrate that even when exchanging partners are faced with hazards due to the presence of specific assets, the latter increases the complexity of contracts (Joskow 1988). Adaptation problems arise due the fact that some contractual aspects cannot be determined *ex ante*, whereas evaluation problems are related to the difficulty of assessing whether the terms of the contract are fulfilled or not. Such problems lead to an increase in transaction costs and renegotiation of contract terms (Rindfleish and Heide 1997).

In case of weak institutional enforcement, informal and self-enforcing arrangements are preferred (Bouis and Haddad 1990). Exchange relationship between farmers and their buyers often represent a clear example of adoption of such informal arrangements. Several studies have explored informal trade arrangements that make exchange more efficient, revealing a pattern of informal agreements highly consistent with TCT (Palay 1985). Governance modes such as relational exchange represent a non-contractual safeguarded to transaction hazards. Transactions themselves are decided through bargaining and *ex post* arrangements rather than *ex ante* contractual agreement.

Relational governance is considered by many authors to lower opportunism (Macneil 1978; Anderson and Narus 1990; Klein 1996). As Macneil argues, relational exchange is based on a social component, largely represented by trust. Trust behavior is viewed by the author as an important element for sustainable relationships and a necessary condition for relational governance (Macneil 1980). Trust is considered to strengthen the capability of governance (Chiles and McMackin 1996). The authors suggest that "the inclusion of the social-context

variable of trust in the TCE framework will yield a model with greater predictive validity” (Chiles and McMackin 1996, 88). Long term relationships and social embeddedness seem to select out inefficient relationships, preserving those based on trust.

Trust– The Mediating Role on Exchange Relationship Outcomes

Many researchers have conceptualized trust as related to the partner’s following characteristics: honesty and benevolence (Geyskens et al. 1998). Trust in the partner’s honesty is a belief that one’s partner is reliable, sincere and fulfills promised obligations (Anderson and Narus 1990). Another approach is offered by Williamson (1993), who makes a further distinction between calculative and personal trust, suggesting that calculative trust is rational and the concept itself is similar to risk. Personal trust, on the other hand applies only in close personal relations. Despite different ways trust is conceptualized, there is significant debate whether trust should be examined using one measure or a composite of different facets of trust (Geyskens et al. 1998).

Different facets of trust, including those related to personal obligations (Chiles and McMackin 1996) as well as calculative-based trust (Williamson 1993) associated with a more rational decisions, are important components of relational exchange. Based on this relational approach, trust needs to be built in order to eliminate *ex ante* goal divergence through a socialization process. Additionally, there is significant evidence of the positive relationship between trust and commitment (Geyskens et al. 1998). Hence, the decision to choose one/few selected buyer/s and commit to the relationship can be partly related to trust and a long socialization process.

Morgan and Hunt (1994) positioned trust and commitment as key variables, mediating the relations between important antecedents such as communication, shared value, relationship benefits, etc., and consequences such as conflict, uncertainty, tendency to leave network, etc. The authors found that trust and commitment are differentially related to the sets of antecedents and consequences, but there is strong evidence of their impact on the relationship outcomes. Similar results are confirmed by Geyskens et al. (1998) in their meta-analysis. They conclude that trust is often conceptualized as a key mediator influencing satisfaction and long-term orientation as final outcomes. The authors also stress the fact that environment uncertainty and communication have different effects on long-term orientation, satisfaction, and trust, suggesting areas of interest for future research.

Relationship between Trust, Long-Term Ties and Behavior Uncertainty

Making “credible commitments” (Williamson 1983, 1985) is one strategy for creating a self-enforcing agreement between the parties involved in a transaction. Economic models of relational governance (Klein 1996) highlight the role of repeated exchange in motivating and sustaining long-term ties because such relationships reduce behavior uncertainty and risks of opportunism (Ring and Van de Ven 1992). This is confirmed by empirical research. Buvik and John (2000) in their study based on a survey of 161 manufacturing firms concluded that buyers with a longer history of exchange relationship with a supplier report lower levels of *ex post* transaction costs. But, as argued by Heide and John (1990) behavioral uncertainty created by the buyer will have a negative effect in the suppliers’ trust and willingness to stick to the terms of contract. Also, perceptions of high levels of environmental uncertainty may negatively affect the

willingness of exchange partners to invest in long term sustainability of the relationship (Joshi and Campbell 2003). Suha and Kwonb (2006) argue that behavior uncertainty will decrease trust in the partner since it creates a performance evaluation problem. As confirmed by empirical research, relational exchange is affected by the level of uncertainty that undermines trust. Consequently, it can predict that relational governance in which trust constitutes an important component will be affected as well.

The negative relationship between trust and uncertainty is examined by Das and Teng (2004), who suggested a more psychological approach in examining such relationship. The authors argue that current measures of trust do not focus on the probability aspects of obtaining desirable outcomes. Their approach suggests that there is a need to develop trust measures that are explicitly risk-oriented. Perceived risk or uncertainty is considered by the authors a mirror reflection of trust. This risk-based approach to trust is in line with the view of TCT theorists. Williamson (1993), for instance, has argued that trust can be treated as a subset of risk and thus limit using the term trust. Such approach can be helpful to understand if risk-oriented measures can be more effective in defining relational governance and better investigating the consequences of such governance mode.

The Relationship between Relational Ties and Transaction Costs and the Moderating Role of Behavior Uncertainty

Trust—a vital mechanism of relational exchange—may reduce both *ex ante* and *ex post* opportunism (Zaheer and Venkatraman, 1995). Hence, it's expected that relational ties between businesses partners built on trust mechanisms can reduce transaction costs. The expected pay-offs from cooperation deters business partners from the pursuit of short run gains, thereby limiting opportunistic behavior (Popo and Zenger 2002). Additionally, in the case of transactions between Albanian Medicinal Aromatic Plant farmers and their buyers, trust may play a more important role in facilitating transactions since formal governance mechanisms (i.e. contracts) are expensive and both farmers and buyers cannot rely so much on the institutional system (i.e. laws). Such arguments that underline the efficiency of relational governance find confirmation in empirical studies. Popo and Zenger (2002) confirm that relational governance is positively influencing exchange performance. The authors measure performance by examining the overall satisfaction with exchange, incorporating both production and governance efficiency in their construct. Furthermore, they conclude that relational governance and contractual complexity are complements influencing satisfaction with exchange performance. By focusing only on governance efficiency, we argue that partners engaging in relational exchange face lower transaction costs. The following hypothesis captures this notion:

H1. Relational governance as an alternative to spot market exchange leads to reduced transaction costs

Behavioral uncertainty relates positively to the propensity of firms to move towards hierarchical forms of governance as confirmed in Geyskens et al. (2006) meta-analyses. Firms tend to avoid opportunistic behavior since behavioral uncertainty creates the problem of performance evaluation, leading to an increase in transaction costs and renegotiation of contract terms (Rindfleisch and Heide 1997; Dyer 1996). Behavior uncertainty appears to affect the governance

structure and the intended outcomes of governance itself—the *ex post* transaction costs. Therefore, the following hypothesis is formulated:

H2. *Increase in behavior uncertainty is positively associated with transaction costs.*

Some authors (e.g. Van de Ven 1992, Das and Teng 2001, Masters et al. 2004) have argued that under certain circumstances relational exchange may bring relational risks. However, perceptions of uncertainty and risk appear to trigger different behavior among exchanging business partners depending on risk propensity and level of trust (Masters et al. 2004). The authors argue that the inclusion of risk propensity of managers as a moderator may alter the influence of TCE variables on the governance choice. Taking an “unorthodox” stand, Masters et al. (2004) provide empirical evidence that under increasing level of asset specificity, risk taking managers choose closer ties while one could expect the contrary. Investigating relational variables, Mumdziev and Windsperger (2013) take a similar analytical approach. Testing the moderating role of trust in the relationship between behavior uncertainty and the franchisees’ degree of decentralized decision-making, they find that trust acts as a quasi-moderator. The authors argue that trusted franchisees need to be monitored less, since franchisors’ perception of behavioral uncertainty can be reduced. Based on Mumdziev and Windsperger (2013) arguments regarding the relationship between trust and uncertainty, we hypothesize a moderating role of the later. We argue that farmers’ perceptions of higher levels of behavior uncertainty might jeopardize relational ties by undermining the mechanism of trust at the heart of such exchange relations. While an increase in behavior uncertainty can increase transaction costs, it also weakens the negative relationship between the governance mode and the transaction costs, acting as a quasi-moderator. We infer that the relationship between relational exchange and transaction costs is less negative under high levels of uncertainty. This assertion is tested through the following hypothesis:

H3. *The impact of relational ties on ex post transaction costs is higher with lower levels of perceived behavior uncertainty than with higher levels of perceived behavior uncertainty.*

Methods and Procedures

Research Setting

The MAP sector served as a setting for our research. This is one of the most important sectors in the Albanian economy, especially in terms of international trade and employment. MAPs sector is export oriented, as 95% of the product is exported; with around Euro 20 million of export value in 2013, the sector contributed to 18% of agriculture exports (Skreli and Imami 2014). The sector also plays an important socio-economic role, contributing to part of household income for many wild-growing MAP harvesters and farmers living in rural areas. Wild-harvesting of MAPs is a common tradition in Albania given the high share of the rural population and high unemployment in these areas. However, many families in some regions of the country generate even higher incomes from MAPs cultivation, which is becoming a significant trend.

The structure of the supply chain is relatively simple: wild-grown MAP harvesters and farmers are selling to consolidators and the later to wholesalers/exporters. Many exporters, especially those located in areas with dense networks procure raw materials directly from farmers or

cooperatives of farmers. Exporters are engaged in processing (e.g., cleaning, cutting, grinding, distillation for the production of essential oils, etc.) and sell most of the produce to a dozen international buyers. Competition between the Albanian exporting companies seems to be fierce, not only in ensuring sales contracts but also in procuring raw materials.

This study is restricted to those areas in the northern part of Albania where there is evidence of farmers' investment in specific assets, growing collaboration between farmers, and competition between buyers. Areas where the sector remains underdeveloped were excluded from the study. Furthermore, the areas studied are specialized in some varieties of MAP characterized by a growing demand.

Data

The data were collected during end of spring 2013 by interviewing a random sample of 170 farmers. The interviews were conducted after a piloting process in three regions, namely Shkodër, Kukës and Dibër. A sample size of 170 interviews was considered to be sufficient to provide a precision level of 6.8% and a confidence level of 95% (Israel 2012).

The research instrument consisted in structured interviews, which were designed based on an extensive literature review, and consultations with agricultural economists, scholars and practitioners.

The questionnaire was designed to operationalize the constructs discussed in the measurement section and summarized in Table 1. The following information was collected: relationships between supplier and buyer (sale to the same or different buyer), reasons for selling to the same buyer (secure market, reliability, trust, fair prices, closer economic and financial relationship, inertia, shorter distance, contract, quick and secure payment), price and product characteristics uncertainty, contracting and reasons for the lack of formal contracts, specific assets, level of horizontal cooperation, competition among farmers, competition among buyers and information, negotiation and monitoring costs. Other relevant information was also included in the questionnaire such as demographics (age, education, gender, household size, and main employment), marketing channel chosen by farmers, time and form of payment, transport time and costs, etc.

Questions regarding perception of farmers related to uncertainty or transaction costs were carefully structured and explained during interviews. Farmers were asked to assess how high their bargaining costs were, such as negotiating and monitoring costs of reaching an agreement on product specification (where product specification represents quality characteristics and standards). They were asked to evaluate these costs on a scale of 1 to 3, with 3 being the highest and 1 being the lowest. Similar format questions have been used to collect information on negotiation cost regarding pricing and transport arrangements (refer to Table 1).

Measurements

Details of the constructs and operationalizations of the variables are provided in Table 1 and are discussed below.

Table 1. Details of Constructs and Measures

Construct and Concept	Operationalization	Number of items	Measurement
Dependent Variable			
Transaction costs	a) Negotiation and monitoring costs regarding price b) Negotiation and monitoring costs regarding product specifications c) Negotiation and monitoring costs regarding transport	3	Ordinal scale (low-high, 3-points scale)
Independent Variable			
Relational ties	d) Composite variable - Repeated exchange under conditions of trust	2	<i>Dummy</i> , 1= commitment to selected, trusted buyers , 0= spot market exchange
Moderating Variable			
Uncertainty	e) Uncertainly regarding price f) Uncertainty regarding product specifications	2	Ordinal scale (low-high, 3-points scale)

Transaction Costs

Negotiation and monitoring costs arise from the act of the transaction, such as negotiating and deciding terms of contracts, paying an intermediary to the transaction, or monitoring the quality of goods, etc. (Williamson 1983). Farmers face such costs especially when negotiating about prices, product specifications and transport, which end up being quite challenging to quantify. Our approach in this research is to verify the perception of farmers related to such transaction costs.

According to Buvik and John (2000), in order to define the level of coordination between exchanging partners there is need to focus on *ex post* transaction costs such renegotiations and monitoring costs. Both these transaction costs are faced by farmers *ex post*, when deciding per unit prices based primarily on quality of the dried MAP, quantity, and transport arrangements. Based on research from Buvik and John (2000), this study operationalizes the construct using three items—negotiation and monitoring costs regarding product specifications, price, and transport. Each item is measured by a scale variable from 1 “low” to 3 “high”. The *Cronbach Alpha* for the construct is acceptable, at 0.77.

Relational Ties

In this study, relational governance is viewed as a composite factor of repeated exchange (Klein 1996) as a structural dimension of governance and trust as an underlying norm of the process of

exchange. Viewing relational ties as the degree of the supplier's dedication to its buyer, repeated exchanges are measured in terms of the selling pattern of the farmer—in other words, whether he/she sells constantly to one or very few selected reliable buyers or is inclined to engage in spot market exchange. This conceptualization is consistent with the findings of John and Weitz (1988, 345), who view forward integration as a “percentage of direct sales to end-users,” as well as with Zaheer and Venkatraman (1995, 382), who measured quasi-integration as a “percentage of business (commercial premiums)” accounted for by the focal carrier. In conceptualizing relational ties, it is argued that the supplier should consider their exchanging partners as reliable as suggested by Morgan and Hunt (1994). Trust is positively associated with long term orientation as empirically tested by Ganesan (1994), hence it is incorporated in the construct of relational ties. Reliability of the buyer isolates the effects of habitual patterns of selling to one or few selected buyers due to geographical vicinity, inertia or other factors. A dummy variable is used to measure the level of repeated exchange to one/few reliable partners. The variable takes the value 1 for “sell to the same reliable buyer/s which we trust” and 0 for “sell to different buyers”.

Behavior Uncertainty

Behavior uncertainty is closely related to quality and price. Zaheer and Venkatraman (1995) operationalize behavioral uncertainty with two indicators regarding the perceived uncertainty due to pricing and the new product introduction. Based on this research, the construct is operationalized using two items—uncertainty regarding product specifications and price. Each item is measured by a scale variable, where 1 is “low” and 3 is “high”. The *Cronbach Alpha* for this construct is acceptable, at 0.69.

Empirical Model

The hypothesis are tested using moderated multiple regression analyses. The interaction (or moderator) effect in the moderated regression model is estimated by including a cross-product term as an additional exogenous variable. Based on previous studies (e.g., Stank et al. 1996; Suhadev 2008; Mumdziev and Windsperger 2013) and following the approach specified by Sharma et al. (1981), the nature of the moderating variable is investigated using the following equations:

$$1) Y = a + b_1X$$

$$2) Y = a + b_1X + b_2M$$

$$3) Y = a + b_1X + b_2M + b_3XM$$

Where Y is the dependent variable representing—the level of transaction costs, X is the independent variable—the relational ties, M is the potential moderating variable—behavior uncertainty and XM represents the interaction term. As suggested by Sharma et al. (1981), M can be considered as a pure moderator if equations (1) and (2) are equal to each other but different with equation (3). M is considered a quasi-moderator if $b_2 \neq b_3 \neq 0$. In this case, such a variable is both a predictor and a moderator as well.

Results

The hypotheses are tested by applying multiple regression analysis. Results are shown in Table 2. Model (1) includes relational ties as an independent variable. The results show a significant negative relation between relational ties and increase in transactions costs, confirming an important proposition of TCT, although the *R*-square predicts that around 8% of the response variable variation is explained by the linear model.

Model (2) includes relational ties and behavior uncertainty in order to test uncertainty as a predictor of transaction costs. Furthermore, this model, combined with model 3, serves to confirm whether uncertainty is a quasi-moderator (Sharma et al. 1981). The results of model 2 confirm the expected positive relationship between uncertainty and transaction costs—an increase of uncertainty is associated with increase in transaction costs. Although the relationship between relational ties and transaction costs is not significant, the results incline in the expected direction. *R*-square indicates that 52.4% of the response variable variation is explained by the new model. The Beta coefficient provides further proof of the importance of uncertainty in determining the outcome of the transaction.

Table 2. Moderating Effect of Uncertainty

Variables	Model (1)		Model (2)		Model (3)	
	Value	P-value	Value	P-value	Value	P-value
Constant	1.421		0.472		0.481	
Relational ties	-0.268	0.000	-0.077	0.158	-0.093	0.083
Uncertainty	N/A		0.624	0.000	0.606	0.000
Cross-product of uncertainty and relational ties	N/A		N/A		-0.078	0.004
<i>R</i> -square	0.079		0.524		0.540	
Significance level of <i>F</i>	0.00		0.00		0.00	

In Model (3), a moderated regression analyses is used to examine the moderating effect of uncertainty. Relational ties, behavior uncertainty, and the interaction between relational ties and behavior uncertainty are included as independent variables. For the analysis, the variables have been standardized before computing the cross product (data points-mean)/standard deviation) to avoid multicollinearity. Standardization of variables are opted compared to centering them since the predictor and moderator have very different constructs and measurement. Hence, interpretation of the results is based on unstandardized coefficients (Aiken and West 1991). The results of the last model show that all relationships between the independent variables and the dependent variable are significant, although relational ties is only significant at a relaxed level ($p < 0.1$). All three hypotheses are supported since the interaction variable and the explanatory variables that make up that interaction must be interpreted together as a system (Aiken and West 1991). The degree of interaction effect was plotted (Figure 1) by introducing a group variable that makes it possible to separate the effect of high and low uncertainty. The interaction term demonstrates that at higher levels of uncertainty, relational ties lead to lower levels of transaction costs, while, contrary to what was hypothesized, at lower levels of behavior uncertainty the opposite effect is seen (H3). The *R*-square indicates that 54% of the response variable variation is explained by the linear model of the third equation. However, the change in *R* square is not very

steep. Collinearity statistics show Variance Inflation Factor (VIF) levels around 1, ensuring that there is no evidence of multicollinearity.

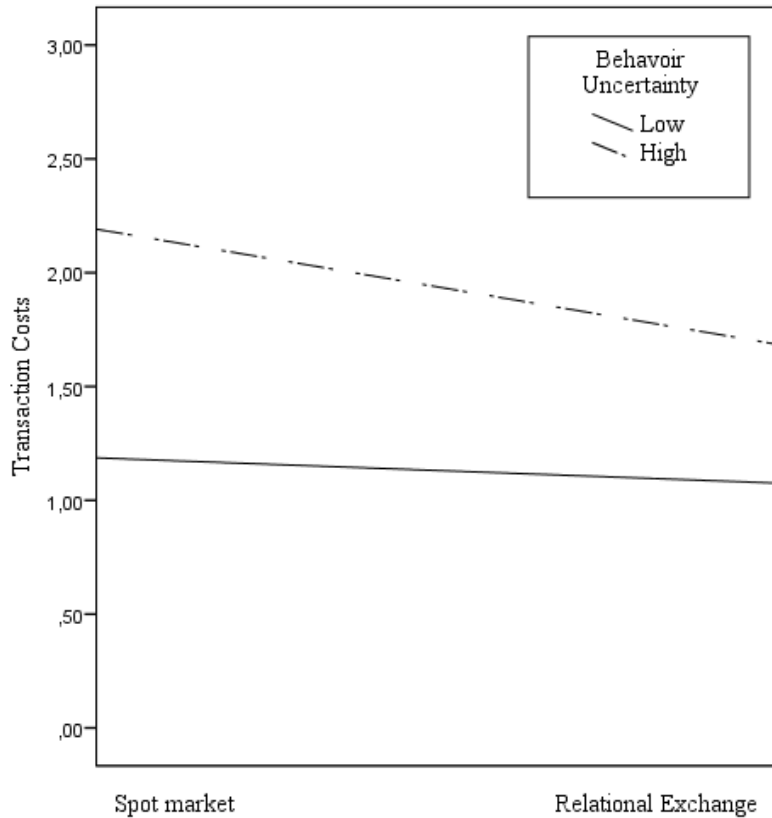


Figure 1. Moderating Effect of Uncertainty

The values of the coefficients and P-values summarized in Table 2 indicate that uncertainty has both a direct as well as an indirect impact on transaction costs, showing that behavior uncertainty is a quasi-moderator. Overall, the empirical results provide some support of the transaction cost propositions.

Discussions and Conclusions

Our investigation contributes to the channel literature underscoring the role of behavior uncertainty in determining the impact of relational ties between farmers and their buyers on transaction costs as one of final outcomes of exchange relationships. Firstly, consistent with the Transaction Cost Theory (TCT) assumption that hybrid forms of governance like relational exchange are expected to lower opportunism and transactions costs (Macneil 1978, Anderson and Narus 1990, Klein 1996, Ring and Van de Ven 1992), our research confirms such a negative relationship although the governance structure explains only a small amount of variance in transaction costs. Specifically, the more farmers strengthen their ties to their buyers by engaging

in repeated exchange supported by trust, the lower the degree of negotiation (or/and re-negotiation) costs.

Secondly, as suggested by many scholars, the behavior uncertainty has a direct impact on transaction costs (e.g. Rindfleish and Heide 1997, Dyer 1996). While the presence of relational arrangements supported by trust appears to have limited, although statistically significant, impact on the expected outcome, behavior uncertainty appears to be a much stronger predictor of the outcome of exchange behavior. Our results confirm Williamson's (1991, 91) argument that hybrid forms of governance are "more susceptible to disturbances" since adoption requires mutual consent by business partners. The mere existence of a long-term relationship between farmers and their buyers does not always mitigate the perceived uncertainty, raising many questions regarding the role and antecedents of uncertainty itself and the measures used for relational governance. It may be necessary to investigate the processual aspects of governance that determine the terms of exchange and the implication of cooperative endeavor (see Zaheer and Venkatraman 1995), partially neglected in our research, in order to better understand the governance process mechanisms that have the potential to mitigate opportunism and uncertainty.

Thirdly, behavior uncertainty has both a direct and indirect effect on the transaction costs acting as a quasi-moderator. It is proposed that the relationship between relational ties and ex post transaction costs is less negative under high levels of uncertainty. It is inferred that behavior uncertainty would negatively affect the strength of the relationship between the governance and the outcome of exchange by undermining trust and increasing the risk of opportunism. However, the effect is opposite to what was hypothesized. It is argued that farmers that experience higher levels of uncertainty and perceive a relational risk in their relationship with their business partners but still engage in relational exchange might have a higher risk propensity as suggested by Master et al. (2004). Although our research has not specifically tackled this aspect of farmers' behavior, we are inclined to interpret such risk propensity as the reason behind the unexpected results. Risk taking farmers tend to strengthen relational ties, thereby increasing the impact the latter has on transaction costs despite the high levels of behavior uncertainty perceived. Although the level of negotiation costs is higher among farmers with high perceived uncertainty, the effect of strengthening relational ties in lowering their negotiation (or/and renegotiation) costs is stronger compared to farmers experiencing lower levels of uncertainty.

Finally, our results regarding predicting strength of behavior uncertainty and relational ties supported by trust in lowering ex post transaction costs bring some new insight to the debate regarding the role of trust in shaping relational ties, the nature of trust measures, and the relationship between trust and uncertainty. Although this study did not investigate the different facets of trust, such as personal and behavior trust (Das and Teng 2004), relational ties supported by trust did not adequately mitigate relational risk. It can be argued that uncertainties related to relational risk are strong predictors of the outcome. The unexpected results related to the effects of the moderating role of uncertainty appear to introduce a new factor to be considered and investigated thoroughly—the farmers' attitude and risk propensity in relational exchange. Some of our results are consistent with Williamson's (1993) conceptualization of trust as a subset of risk, and Das and Teng's (2004) argument on the need to develop trust measures that are explicitly risk-oriented. Other findings, arguably consistent with Master et al. (2004)

conclusions, need further investigation. Our study brings a modest contribution in this direction and opens new perspective for further research.

Our research has some practical relevance for practitioners as well. Our paper results might benefit managers and owners of exporting companies in building sustainable relationships with farmers, boost commitment, and lower opportunism. Our results prove that repeated exchange supported by trust between farmers and their buyers doesn't provide an "insurance policy" for low ex post transaction costs, although it has a certain impact in lowering such costs. Buyers should consider repeated exchange as a pre-condition to ensure long term relationships, since repeated exchange provides structure to the governance form. But even in embedded networks, this approach alone isn't enough to avoid opportunism. Furthermore, considering that the impact of relational exchange on the outcome is considerably stronger among farmers that experience high uncertainty, frequent and consistent exchange with these farmers will have beneficial effects in relational ties and lowering opportunism. It appears that buyers should consider applying a consistent, non-differentiated purchasing policy with all their suppliers regardless of farmers' attitude and perception of relational risk, per *ceteris paribus*. Anecdotal evidence suggests that this is not always the case. Some buyers tend to avoid exchange with farmers that show uncertainty and/or ask for detailed information regarding exchange arrangements. Nevertheless, there are other reasons linked to efficiency that are plausible causes for buyers' decision-making and behavior.

The results of our study yield practically relevant knowledge for buyers while dealing with uncertainty from farmers with whom they work. Mitigating uncertainty in relational exchange appears to be crucial in improving the outcome of exchange relationships since hybrid forms of governance appear to lack efficacy in mitigating uncertainty, as suggested by Williamson (1991) and empirically proven in this study. Managers and owners of exporting companies need to improve coordination and collaborative communication in order to increase the ability of their suppliers to predict and understand partner's behavior. Sharing information and clarifying expectations regarding quality standards, price trends and market developments will lower uncertainty related to pricing and product specifications. Anecdotal evidence suggests that changes in the external environment that have detrimental impact on prices affect the relationship between buyers and farmers, increasing uncertainties and relational risk. Rather than focusing only on relational exchange based on "given word" between business partners, more importance should be given to other process elements of governance that involve coordination and/or cooperation in important activities, such as training on new varieties to be cultivated, harvesting and post-harvesting procedures, etc. Furthermore, managers should consider developing formal customized contracts, at least for big farmers, as a complement to relational governance (see Poppo and Zenger 2002). Such an instrument might limit the potential for opportunism and lower uncertainty among farmers. Anecdotal evidence suggests that such formal agreements developed by exporters of organic MAP, combined with stronger coordination, have been successful in ensuring farmers' commitment and lowering opportunism.

This study has some limitations that caution against generalizing the findings. Although, repeated exchange and trust imply continuity and sustainability in supplier's transaction behavior, other governance process mechanisms and network determinants might have an effect in the dynamics of the relationship itself. The study uses a dichotomous measure for relational

governance, whereas performance outcomes represented by transaction costs are measured using perceptual items. Dichotomous variables cannot show variation in the strength of relational ties, and perceptions measurement has its own limitations. Future research should investigate which causes give rise to a larger effect of relational governance developing richer constructs. Further, the study investigated only the supplier's side of the dyad. Future research using longitudinal data collected by both sides of the dyad and including other moderators might fully test the dynamics of relational governance and its relation with transaction costs. Finally, we have taken some license in speculating on casual linkages between behavior uncertainty, risk propensity, and the outcome of relational exchange. Clearly, it would be useful to further investigate the relationship between relational governance and TCT variables and the outcome of relational exchange.

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