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Determinants of long-term business relationships in the dairy value chain in transition countries: the case of Albania

Building on transaction cost economics theoretical framework, we examined the determinants of long-term business relationships between farmers and buyers in the Albanian dairy chain in a context characterised by weak institutions and lack of formal contract. Logistic regression analysis was employed to test the model on primary data collected from a sample of 315 Albanian farmers engaged in the production of sheep and goat milk. The study results support our hypotheses that trust, uncertainty and investment in specific assets are key determinants of long-term relationships. Implications at managerial and policy-making levels are discussed. At a managerial level, dairy owners and managers need to build trust with farmers and mitigate uncertainties as a precondition for long-term relationships. At the policy level, the government subsidy schemes need to be further refined in order to motivate farmers to increase flock size and strengthen vertical relationships in the dairy value chain, the latter being a precondition also to achieve traceability and improve standards.

Keywords: trust, uncertainty, asset specificity

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Introduction

Effective vertical coordination among value chain actors, from raw material producers to distributers, is considered to be a key source of competitiveness for firms operating in the agriculture sector (Hendrikse, 2007; Reynolds *et al*., 2009). Much of the research focused on exchange relationships (e.g. Ménard and Valceschini, 2005; Reynolds *et al*., 2009; Jang and Olson, 2010) emphasises the benefits of vertically-coordinated business relationships. Improved coordination can lead to higher business productivity (Dyer and Singh, 1998), reduce the uncertainty in food safety demand (Ménard and Valceschini, 2005) and improve farm profitability (Jang and Olson, 2010).

While the benefits of effective vertical coordination appear to be clear, building and maintaining such relationships poses considerable challenges. In the agriculture sector, coordination requires the development of sustainable business relationships (Perez *et al*., 2010; Fischer, 2013), defined by Fischer and Reynolds (2010) as high-quality and stable inter-firm relationships. In addition, understanding the mechanisms and key driving forces that shape such relationships is of crucial importance. As argued by Williamson (1979), the type of variation in governance choices can be explained by the characteristics of transactions, thus mainly (a) the level of uncertainty, (b) the likelihood of recurrence and (c) the degree of asset specificity.

In addition to Transaction Cost Theory (TCT) original arguments (Williamson, 1979), the network in which a firm operates (suppliers, customers and competitors) affects its environment and behaviour, and thereby the type of governance (Powell and Smith-Doerr, 1994). As Ring and Van de Ven (1992) point out, exchange partners establish behavioural rules for processes such as conflict resolution, monitoring and renegotiation. Relational norms between exchange partners can develop with the intent of minimising bargaining costs stemming from asset specificity and uncertainty (Dow, 1987). Trust, as the main social component of relational exchange (Macneil, 1980), reduces both ex ante and ex post opportunism (Zaheer and Venkatraman, 1995). In addition, trust is a key factor influencing the level of satisfaction, commitment and long-term orientation of exchange relationships (Geyskens *et al*., 2006).

Our paper focuses on one of the two dimensions of sustainable relationships: its durability (Fischer and Reynolds, 2010). We focus on repeated interactions and transactions over time, investigating factors influencing such long-term (durable) relationships, namely uncertainty, trust and asset specificity. While much research has been carried out in developed countries which are characterised by solid market institutions and regulative and legal infrastructure on determinants of long-term vertical business relationships (e.g. Batt and Wilson, 2000; Fischer, 2013), less evidence has been collected from developing or transition countries which face higher institutional voids (Bouis and Haddad, 1990). By testing our model in the Albanian dairy sector with data from a structured survey with farmers engaged in production of goat and sheep milk, we aim to bridge this gap. In addition, to the best of our knowledge, this is the first study focusing on the supplier side of the Albanian dairy sector to apply a TCT perspective. We integrate social context into the TCT perspective by explaining how social mechanisms influence exchange relationships. Furthermore, the operationalisation of some constructs (e.g. asset specificity) brings new insights on the sector-specific characteristics that determine exchange business relationships with a focus on durability. Theoretical contributions and implication at a managerial and policy level are further discussed.

In the next section of this paper we provide an overview of the dairy sector, focusing on its importance, major trends, actors involved, value chain coordination dynamics and other relevant information. The subsequent literature review considers the role played by uncertainty, asset specificity and trust on sustainable relationships using the TCT perspective. The later sections cover methodology, analysis of the results, discussions of conclusions and policy and managerial implications.

Dairy sector overview

The livestock sector is the most important agri-food sector in Albania as it accounts for about half of the output value of agriculture. Within the livestock sector, dairy production is considered a priority sector for Albanian agriculture (MARDWA, 2014) as well as an important source of income and food, particularly for remote rural areas.

Milk production has been growing during the last decade: sheep milk production increased by 13 per cent and goat milk by 26 per cent during the period 2010-2015, while the increase in cow milk production for the same period was only 3 per cent. According to Albanian Institute of Statistics data, small ruminant (goat and sheep) milk production makes up around 15 per cent of the total milk production (the remaining 85 per cent comes from cows). While cow milk is produced throughout the year and is the basis for all types of local dairy products, sheep and goat milk is typically seasonal and almost exclusively used to produce cheese; the two main and traditional types of cheeses are white (feta-like) and *kashkaval* (hard yellow) cheese. The domestic market is dominated by locally-produced cheese, but exports are low or non-existent due to high production costs and lack of compliance with international safety standards.

The milk production, collection and distribution system is still very fragmented and characterised by small farms and dairies. Albanian Ministry of Agriculture data show that, during early 2010s, 85 per cent of farms with sheep had up to 50 heads and the situation is similar for goat farms. There are about 430 milk processing units in Albania, of which approximately 25 are large processors, processing more than 10 tonnes per day, 220 are traditional, seasonal dairy processing plants relying only on goat milk; however, the number of informal processors might be much higher.

The selected regions (targeted by our survey) account for slightly more than 50 per cent of the total small ruminant milk production. On the other hand, about half of the seasonal dairy processing units are located in these selected regions (dairy processors of various sizes). For large dairy processing units, it is not possible to delineate the region of supply, as they often buy milk from farms located in other regions too, while smaller/seasonal processors rely exclusively on local raw milk.

Exchange relationships in the Albanian agri-food sector are largely based on spot market or informal agreements; however, other forms of chain coordination are emerging in some sub-sectors. For example, agreements, both written and verbal (informal) types, are more common for greenhouse tomatoes (which have a strong export orientation) than for fruits/apples or other important sub-sectors (ISETNJ, 2017). In the dairy sector, farmers tend to sell directly to processing plants, usually small dairies (1-3 thousand litres per day), while selling to collectors or other intermediaries is a very rare practice. However, in some regions, large dairies have been building more complex cold chains that include milk collection points. Written contracts between cattle dairy farmers and processers are limited to only 4 per cent, while oral agreements are quite common (two thirds of farmers stated that they agree upon them). There are no available data regarding written contracts for goat and sheep milk.

As the domestic agri-food production is increasing, food safety is becoming a growing concern, particularly for the livestock/dairy value chain (Gjeci *et al*., 2016). The causes for the lack of quality and safety standards vary, but one main determinant is the weak coordination in the value chain (Dries *et al*., 2009). Despite the slow consolidation trend, the milk production, collection and distribution system is still fragmented and characterised by high levels of informality (from farm, processers, down to retail) and weak monitoring from state authorities, hence resulting in a lack of product traceability. Policy makers are aware of the need to improve supply chain coordination mechanisms and governance. The Albanian Intersectoral Agriculture and Rural Development Strategy 2014-2020 emphasises the importance of coordination by proposing specific support measures to strengthen vertical (and horizontal) cooperation (MARDWA, 2014).

Rationale and hypothesis development

Asset specificity and long-term business relationships

Asset specificity refers to durable and specialised investments in support of particular transactions with limited value in an alternative use (Williamson, 1985). The presence of specific assets can be thought of as creating switching costs (ibid). Asset specificity is the result of thin markets (Dorward and Kydd, 2004), leading firms to adopt governance structures that mitigate such risks. Dyer (1996) suggests that the presence of specific assets can lead to enhanced coordination and cooperation between business partners. Empirical research in the dairy sector shows that the rise in human, physical and site-specific assets increases the degree of vertical co-ordination (Banterle *et al.*, 2006). Hence, we posit that:

- *Hypothesis 1: Investment in specific assets increases the likelihood of long-term business relationships.*

Uncertainty and long-term business relationships

Uncertainty is a multi-faceted dimension of exchange relationships with a very diverse effect on governance choices. As Klein (1989, p.256) noted, "It appears that uncertainty is too broad a concept and that different facets of it lead to both a desire for flexibility and a motivation to reduce transaction costs". Hence, in analysing governance choice, we take into account different facets of uncertainty that might affect long-term relationships between dairy farmers and their buyers.

Milk producers face environmental and behavioural uncertainty in transactions with their buyers. Local supply and demand mismatch may contribute to price volatility and volume uncertainty (the volume requirements especially during the peak season are difficult to forecast). Farmers face behavioural uncertainty too, because of the unbalanced negotiating power compared to dairy owners, resulting in contractual (although only verbal) commitment uncertainties. However, these different facets of uncertainty are very often

seen by farmers as intertwined with each other. Uncertainty about volumes and price is often linked with opportunistic behaviour of dairy owners (behaviour uncertainty), not to the external market factors, although this might be the case. Hence, in our study, a comprehensive and separate assessment of the role played by different facets of uncertainty in determining governance choice was quite challenging. However, we can hypothesise opposite outcomes depending on the role played by different facets of uncertainty.

Uncertainty can encourage the adoption of hierarchical or hybrid forms of governance as mechanisms to reduce transaction cost, since uncertainty can instigate adaptation and evaluation problems (Heide, 1994). This tendency is stronger when business partners are engaged in recurrent transactions, which is typical for the dairy sector. While non-cooperative behaviour can be a proper strategy for discrete exchanges, the expectation of reciprocity encourages business partners to cooperate in on-going exchanges (Parkhe, 1993). As argued by Geyskens *et al*. (2006) we can expect parties to set up vertical coordination or relational types of governance in order to mitigate opportunism.

Volume uncertainty can also lead to hierarchical forms of governance (Walker and Weber, 1984). When suppliers perceive the market as unstable in terms of demand volumes, they might experience excess capacity. For milk producers, this situation can result in income loss. Since suppliers' volume variation can be managed more efficiently when both suppliers and buyers coordinate with each other, volume uncertainty increases the likelihood for hierarchical governance modes to arise (ibid.). From the buyer's perspective, increasing coordination is a way to reduce both food safety risks as suggested by Ménard and Valceschini (2005) and volume uncertainty (Walker and Weber, 1984). Hence, we posit:

- *Hypothesis 2a: Uncertainty increases the likelihood of long-term business relationships.*

On the contrary, some facets of uncertainty can encourage flexibility, leading business partners to choose spot market exchange over hierarchical or hybrid forms of governance. Behaviour uncertainty and environmental uncertainty might have this kind of impact on the exchange relationship.

In contrast to the arguments of Heide (1994) and Parkhe (1993), Suh and Kwonb (2006) argue that the presence of behaviour uncertainty lowers trust with detrimental effects on relational ties and the durability of the exchange relationship. Lack of fairness can seriously affect the relationship between business partners (Das and Teng, 2001; Ring and Van de Ven, 1992) and, finally, the outcome of such a relationship.

On the other hand, high levels of perceived environmental uncertainty may negatively affect the willingness of exchange partners to invest in durable relationships (Joshi and Campbell, 2003) motivating them to remain flexible and develop temporary relationships only (Ganesan and Hess, 1997). This reasoning is in line with the self-enforcing range of the contractual relationship, defined by Klein (1996) as the magnitude of the private sanctions that can be imposed on each transactor who attempts a hold-up. The author argues that an exchange relationship will continue as long as market prices stay within a certain range. On the contrary, if price volatility is high, beyond the self-enforcing range, the gains of breaching the contract exceed the sanctions, hence, eventually, breaking down the relationship.

Anecdotal evidence from Albania suggests that some dairy owners have (mis)used their stronger bargaining position, especially during periods characterised by supply-demand mismatch, lowering prices for raw milk. In some cases, they have also changed quality requirements and transport arrangements, leading to uncertainty among farmers. Farmers that are faced with opportunistic behaviour by a buyer might tend to search for alternative buyers. Even when prices change because of market factors and the change is not attributed to the dairy owner's opportunistic behaviour, commitment to long-term relationships is eroded. Therefore, based on this line of reasoning, our alternative hypothesis is that uncertainty, both related to market price volatility or buyer's behaviour, has negative effects on long-term relationships:

- *Hypothesis 2b: Uncertainty lowers the likelihood of long-term business relationships.*

Trust and long-term business relationships

In general, trust is an expectation into the future behaviour of others; it emerges after positive personal experiences (Luhmann, 2000). Governance will be enhanced with increasing levels of trust (Joshi and Stump, 1999). The expected pay-offs from cooperation deter trustworthy business partners from the pursuit of short-term gains, thereby limiting opportunistic behaviour (Poppo and Zenger, 2002). On the other hand, relational exchange is often based on informal agreements based on trust and reputation; thus trust serves as a substitute for contracts since the latter are too costly to write, monitor and enforce (Bromiley and Cummings, 1995). Thus, trust reduces both *ex ante* and *ex post* transaction costs by mitigating or eliminating opportunism (Zaheer and Venkatraman, 1995). Based on this reasoning, we expect trust to affect positively the durability of exchange relationships.

Empirical research confirms the role of trust in shaping exchange relationships. Sustainable and long-term relationships based on trust have been found to be an alternative to vertical integration and contracts for the German pork sector (Schulze *et al*., 2006). Claro and Claro (2004) argue that mutual trust, joint actions and long-term orientation, in addition to formal contracts, are informal safeguard mechanisms adopted by partners in international coffee supply chains. Based on this evidence, our third research hypothesis is as follows:

- *Hypothesis 3: The existence of trust between business partners increases the likelihood of long-term business relationships.*

Methodology

Data

A structured farm survey using two-stage sampling took place during spring 2015. The first stage was purposive, consisting of a piloting process in various regions (with different characteristics), namely Shkodër, Kukës, Dibër (located in northern Albania), Berat, Korçë and Elbasan (located

in central and eastern Albania). SPPS module of Complex Sample was used to select the sample. A sample of 15 villages was selected from all the villages in each region. In order to have a statistically solid subsample, 315 farmers were interviewed. The margin of error based on small ruminants' value chain subsamples is ±5.6 per cent with a 95 per cent confidence interval (Israel, 1992). The questionnaire was designed to operationalise the constructs discussed in the following sub-section. The information was collected on: relationships between supplier and buyer, volume, price as well as level of uncertainty, trust and commitment of farmer towards his/her buyer. Information such as demographics (age, education, gender, household size and main employment), presence negotiation costs and horizontal cooperation was also gathered.

Measurements

The constructs and the operationalisation of variables are listed in Table 1 and discussed below.

Long-term business relationships. Following Fischer and Reynolds (2010), conceptualisation of sustainable relationships as a construct composed by a two dimension-quality and durability, we focus on the latter so as to capture the dynamicity of the relationship. Considering the lack of contractual governance and relational nature of the relationships, we build on operationalisation of Klein (1996) who refers to relational ties as the degree of a supplier's dedication to its buyer. Hence, we use repeated exchange with one or, very rarely, few (no more than two) selected buyers to measure a long-term relationship (in rare cases, when one dairy is seasonal, farmers that produce cow milk (in addition to goat and sheep milk) tend to sell their produce to two different dairies depending which one is operating in a particular season). Farmers were asked to state if they sell (usually) to one or very few selected buyers (in the above-mentioned circumstances), or if they are inclined to engage in spot market type of exchange relationships. The respondents were informed that the exchange needed to extend over a period of at least one year to be considered as repeated exchange with one buyer. This operationalisation is consistent with the empirical work of John and Weitz (1988) and Zaheer and Venkatraman (1995) who used similar measures. We use a binary variable to measure the level of repeated exchange to one/few partners.

Specific assets: Purchase of dairy-specific equipment and investment in a large flock of small ruminants is undertaken by farmers usually with the firm intent to specialise in milk production. These investments can be diverted to alternative uses only at a substantial cost. We argue that the more farmers specialise in milk production as their main agricultural activity and invest to increase their flock and other related investments (e.g. stables), the more their assets are specialised to the exchange relationship (e.g. quality requirements, milk source and type, storage and transport requirements). Hence, the flock size can be considered as an adequate measure of investment in specific assets for milk producers.

Empirical research confirms this important role of flock size in defining the nature of exchange relationships. Tsourgiannis *et al*. (2008) found that farm and farmers' characteristics such as the size of the flock, volume of milk production, farm income and debt affect the market channels choice of the small ruminant milk producers. Similar results were obtained by Bardhana *et al*. (2012). Following Dries and Swinnen (2010), who measured investment in specific assets in the dairy sector in Poland (including flock size) and the rationale above, we operationalise specific assets as the number of small ruminant heads and measure it as a logarithm of this number in order to linearise the relationship and avoid heteroscedasticity.

Trust: Consistent with the reasoning of Anderson and Narus (1990) and Zaheer and Venkatraman (1995), we included two items that measure the mutuality of trust and two others that measure behavioural trust. Each item is measured on a five-point Likert scale. The four-item construct yielded a Cronbach Alpha of 0.829.

Uncertainty: Zaheer and Venkatraman (1995) operationalised uncertainty through two indicators reflecting perceived

Table 1: Constructs and measures.

Construct and concept	Operationalisation	Measurement
Dependent variable		
Long-term business relationship	• Repeated exchange with selected buyer	*Binary*, 1=sell to reliable buyers, 0=spot market exchange type of relationships
Independent variable		
Specific assets	• Flock size	Logarithm of flock size
Uncertainty	• The demand for our products is unstable • The prices for our products are very unstable • My buyer/s frequently changes/change the request for products qualities and standards	Five-point Likert scale (1=strongly against; 5=strongly agree)
Trust	• I (as a supplier) can be trusted by my buyers • I am very committed to the relationship with my main buyers • The relationship with my buyers deserves maximum attention. • Buyer/s is/are satisfied with my products	Five-point Likert scale (1=strongly disagree, 5=strongly agree)
Controls		
Bargaining power of buyers	• The farmer operates in a region characterised by the presence of large buyers	*Binary*, 1=farmer conducts business in a region characterised by the presence of large dairy firms, 0=farmer conducts business in a region characterised by presence of small dairies
Cow milk production	• The farmer is engaged in production and selling of cow milk	*Binary*, 1=income from cow milk, 0=no income from cow milk

Source: own construction

uncertainty related to pricing and the new product introduction. However, in our case, farmers' uncertainty is also closely related to the volumes of milk bought by the processor. Based on this reasoning, we operationalise the construct using three items: uncertainty regarding volume, price and product specifications. Each item is measured on a five-point Likert scale. The Cronbach Alpha for this construct (0.793) is acceptable.

Controls

Bargaining power of buyers: Fischer (2013) argues that equal power distribution leads to sustainable relationships. Hence, strong bargaining power from buyers might negatively affect the long-term relationship. However, the presence of large dairies and their strong purchasing power might mitigate the farmers' perception of volume uncertainty, incentivising farmers to engage in long-term relationships. Consequently, we do not hypothesise a direction for this variable in our model, but rather include it as a control variable.

Cow milk production: Our research is focused on farmers engaged in small ruminant (goat and sheep) milk production. However, many farmers produce cow milk too. Using the same rationale for asset specificity, we might expect that production of cow milk might motivate farmers to build long-term relationships.

Empirical model

A binary logistic regression model is used to assess the determinants of farmers' likelihood to engage in long-term relationships. This model was selected considering the dichotomous nature of the dependent variable. This model has the following form:

$$\ln\left(\frac{P_i}{1-P_i}\right) = a + b_i x_i + \ldots + c_i z_i + e \quad (1)$$

where P_i, the probability that the supplier i is engaged in long-term relationships; $1-P_i$, the probability that the supplier i engages in spot market exchange; a, a constant; x_i, z_i, the variables standing for dependent variables, specific assets, trust and uncertainty; and b_i, c_i, vectors of parameters to be estimated.

$$\frac{P}{1-P} = e^{a+b_i x_i + c_i z_i} \quad (2)$$

The odds ratio for the case at hand should be interpreted as follows: one unit increase – says – in the level of uncertainty increases by e^{b_1} the ratio of probability that supplier engages in long-term exchange relationships to the probability that farmer does engage in spot market exchange.

Construct validity for the two perceptual independent variables

We performed a factor analysis with varimax rotation to test the validity of our perceptual independent variables (Annex). The results for trust design variable loaded reasonably high (0.893, 0.772, 0.843, 0.837). For uncertainty, all three factors also loaded high (0.796, 0.884, 0.840). Loadings were above the acceptable standard of 0.32 proposed by Tabachnick and Fidell (2007). After the validity tests, we concluded that the measures could be accepted to test the hypotheses.

Variables correlations and multicollinearity

The correlation coefficients between the independent variables are not significant (data not shown). In addition, Variance Inflation Factors (VIF) are around 1. Thus, there are no problems with multicollinearity.

Results

Descriptive statistics

The average size of the small ruminants' herd is small, around 87 animals (Table 2). There is a strong variability in flock size (SD=53.5). Both uncertainty and trust have means above average measurements used (Likert scale 1-5). This might appear counter-intuitive, but it can indicate that farmers trust their buyers at a personal level (behaviour trust) but are uncertain about price and quality requirements due to environment factors that affect both parties. Hence, we can assume that environmental uncertainty plays a significant role in the overall level of uncertainty perceived by farmers.

Of the 315 farmers, 173 (56 per cent) engage in spot market exchange and 139 (44 per cent) have long-term relationships with dairy owners and managers (Table 3). These data suggest a strong reluctance among farmers to coordinate with their buyers, showcasing the lack of coordination and resulting challenges in the dairy and livestock sector. These results appear to be consistent across the regions included in the survey. The only outlier is the region of Berat. This is one of the regions renowned for the presence of large processors in almost all agri-food sectors, including the dairy sector. Erzeni, a large milk processing company, for instance, has established long-term relationships with dairy farmers, including written contracts (ISETNJ, 2017). Anecdotal evidence suggests that large milk processors tend to invest more in supply chain coordination than smaller ones.

Table 2: Descriptive statistics (N=315)**.**

Variables	Minimum	Maximum	Mean	SD
Flock size	30	200	86.7	53.5
Uncertainty	1.00	5.00	3.59	0.84
Trust	1.00	5.00	4.10	0.59

Source: own data

Table 3: Numbers of farmers in long-term relationships versus spot market exchange by region.

Region	Sport market exchange	Long-term relationship
Shkodër	32	27
Kukës	35	13
Dibër	31	15
Elbasan	32	17
Berat	11	36
Korçë	35	31
Total	176	139

Source: own data

Regression model results: hypotheses tested

Table 4 depicts the results related to hypotheses 1, 2 and 3. There is a statistically significant, positive relationship between variables representing trust and flock size and the variable representing long-term business relationship, and a negative relationship between uncertainty and long-term business relationship.

The Hosmer and Lemeshow test, assessing the goodness of fit of a model, shows $p > 0.05$ (0.445), confirming the validity of our model. The classification table shows that 69.5 per cent of the outcome was predicted by our model compared to 55.9 per cent of the initial model. The Nagelkerke R Square shows that around 22 per cent of the variance can be attributed to the independent variables (only 7.4 per cent can be attributed to controls). The following interpretation is based on the final results of our analysis.

Investment in specific assets and long-term business relationship

As expected, the larger the flock size (investment in specific assets), the more likely farmers are to establish long-term business relationships with their buyers ($p < 0.01$ and $\exp(B) = 1.956$), as shown in Table 4 (i.e. *Hypothesis 1 is supported*). More accurately, for one unit change in flock size (or for an increase of 2.7 heads increase; we used the natural logarithm to the base of mathematical constant) the odds ratio of engaging in sustainable relationships almost doubles ($\exp(B) = 1.956$).

Flock size appears to be strongly related to long-term business relationship (Pearson's Chi square test shows a $p < 0.05$). Around 40 per cent of the farmers that engage in long-term relationships own more than 100 animals versus just 23 per cent of farmers engaged in spot market exchange (Table 5). These results suggest that farmers who have invested relatively large financial resources, owning sizable flocks, tend to mitigate uncertainty and the risk by building long-term business relationship with their buyers. Specialisation in milk production appears to make farmers more inclined to deal regularly with one buyer, since their investment has limited value in an alternative use compared to smaller farmers who can switch to other activities (e.g. homemade cheese).

Uncertainty and long-term business relationship

As hypothesised, the presence of uncertainty is negatively and significantly associated with long-term relationships (i.e. *Hypothesis 2b is also supported)*. The parameter $\exp(B)$ is 0.886, statistically significant at $p < 0.5$ (Table 4), showing that farmers are more likely to change buyers and engage in spot market type of exchange if uncertainty increases.

Descriptive statistics show that farmers who perceive higher levels of uncertainty tend to engage in spot market exchange. Chi square analysis shows a significant association between uncertainty and long-term business relationship ($p < 0.05$). Of the 176 farmers who engage in spot market exchange, 133 (i.e. around 76.0 per cent) perceive levels of uncertainty above the average, versus only 80 (57.5 per cent) out of the 139 farmers that engage in long-term relationships with their buyers. However, despite the expected differences, the level of uncertainty, as explained earlier, is quite high due to market factors.

Trust and sustainable relationships

Trust is positively and significantly associated with sustainable relationships (i.e. *Hypothesis 3 is supported as well)*. The parameter $\exp(B)$ for *Trust* is 1.284 and it is statistically significant at $p < 0.01$ (Table 4), showing that farmers that trust their buyers are more inclined to engage in long-term business relationships. Descriptive analysis shows clearly that farmers engaged in long-term relationships have higher levels of trust in their buyers compared to those that engage in spot market exchange. Around 47 per cent of farmers engaged in long-term relationships claim to perceive high levels of trust compared to just 29 per cent of farmers that engage in spot market relationships (Table 6). Chi square analysis provides further confirmation of the significant association between trust and long-term relationships – the p-value is smaller than 0.05.

Finally, our results for the control variables (Table 4) show that our proxy for bargaining power of buyers is positively and significantly related to long-term business relationships ($\exp(B) = 2.521$ and ($p < 0.001$), while the variable standing for a mixed farm (versus a small ruminants farm) producing both sheep and goat milk and cow milk does not affect long-term relationships between farmers and their buyers ($p > 0.1$).

Table 4: Results of the logistic regression.

Variable	*B*	S.E.	Wald	Sig.	exp(*B*)
Bargaining power of buyers	0.925	0.262	12.436	0.000**	2.521
Cow milk production	0.197	0.261	0.571	0.450	1.218
Flock size	0.671	0.204	10.840	0.001**	1.956
Uncertainty	-0.121	0.051	5.591	0.018*	0.886
Trust	0.250	0.058	18.878	0.000**	1.284
Constant	-6.547	1.476	19.676	0.000**	0.001

Dependent variable: long-term business relationship; ** $p < 0.01$, * $p < 0.1$
Source: own data

Table 5: Numbers of farmers in long-term relationships versus spot market exchange by flock size.

Flock size	Sport market exchange	Long-term relationship
30-50	83	42
51-100	52	41
101-150	27	31
151-200	14	25
Total	176	139

Source: own data

Table 6: Numbers of farmers in long-term relationships versus spot market exchange by level of trust.

Level of trust	Sport market exchange	Long-term relationship
Low	2	1
Average	123	73
High	41	65
Total	176	139

Source: own data

Discussion

Our study analysed the factors that influence the propensity of goat and sheep dairy farmers in Albania to build long-term relationships with their buyers using the TCT perspective. This is the first in-depth study focusing on the dairy sector exchange relationships in Albania, a research setting characterised by significant institutional voids and lack of contracts.

The research found that farmers' propensity to build long-term and sustainable relationships with their buyers is determined by mutual trust, uncertainty and investment in specific assets. The positive role of trust in shaping the exchange relationship gives credit to sociologists and network theorists arguing that relational ties based on trust will yield long-term relationships (e.g. Zaheer and Venkatraman, 1995; Dyer and Sing, 1998; Claro and Claro, 2004; Schulze *et al*., 2006). However, long-term relationships and the recurrence of transactions can be viewed as the right conditions for trust between business partners to grow. Repeated exchange can allow for informal control through embeddedness (Granovetter, 1992) leading to higher levels of trust as suggested by Heide and John (1990). Hence, to understand better the causality of this relationship longitudinal, studies are needed.

Our research found that uncertainty is a strong predictor of exchange relationships and it has a significant negative effect on farmers' propensity to engage in long-term relationships. We argue that perceived behaviour uncertainty may have a detrimental effect on exchange relationships (see Ring and Van de Ven, 1992; Suh and Kwonb, 2006), leading farmers to opt for a spot market exchange. Furthermore, in particular periods of time and some local contexts, uncertainty might not be related to buyers' behaviour but rather to market dynamics. Price volatility can affect the exchange relationship as suggested by some scholars (e.g. Klein, 1996; Joshi and Campbell, 2003) leading farmers to break down the relationship. Unfortunately, in our study we are not able to separate the different effects of environment from behavioural uncertainty. Further research might address this shortfall.

Investment in specific assets is found to affect positively long-term relationships in line with TCE arguments (Williamson, 1983) and empirical research (e.g. Anderson and Weitz, 1992; Dyer, 1996; Banterle *et al*., 2006). Flock size appears to be an adequate measure for specific assets (see Dries and Swinnen, 2010), constituting also an important factor that determines farmers' willingness to engage in long-term relationships. Long-term relationships appear to represent an 'insurance policy' that provide protection from the risk of not being able to sell high volumes of milk to dairies. On the contrary, smaller farmers whose small quantity can be processed on the farm and used for self-consumption have the 'luxury' to engage in spot market exchange.

Finally, our study appears to corroborate the role of buyer's bargaining power on exchange relationship. The result shows that farmers operating in areas characterised by the presence of large buyers tend to engage in long-term relationships. We can take some licence to speculate on the reasons behind such controversial findings, based on anecdotal evidence. Large buyers tend to pay on time and in full. Furthermore, they appear to apply fixed prices (at least, less volatile than smaller ones). Finally, having a strong purchasing power and large market share appears to serve as a guarantee for farmers. However, buyers' characteristics, behaviour and their role in exchange relationships should be further investigated.

Our results can help dairy owners/managers to build durable, long-term relationships with farmers and ultimately improve the outcome of their exchange relationships. They should consider improving communication and increasing information exchange with farmers in order to reduce uncertainty and build trust for both partners. On the buyers' side, especially large dairies, improved coordination and durability of the exchange relationship can mitigate volume uncertainty during the low season. Milk can be found relatively easily during the peak of production but it is rather difficult to 'scout' for new suppliers, hence increasing volumes, during the low season. Anecdotal evidence from the region of Berat and the results of our research indicate that large dairies in these areas tend to build long-term relationships with their supply base. As a result, they can manage volume uncertainties better. On the farmers' side, the role of the buyer in mitigating uncertainties, related to both behaviour and environment, can have beneficial effects on the durability of the relationship. Our results show that when farmers perceive low levels of uncertainty and high levels of trust, they tend to engage with one buyer only in durable relationships. Hence, price and quality specifications should not be very susceptible to eventual temporary supply and demand changes, such as seasonal production surpluses. Anecdotal evidence suggests that changes in the quality standards and price are not a rare phenomenon. Such practices adopted by dairy owners may lead to a farmer's lack of commitment to sustain a long-term exchange relationship. Buyers should make clear their terms and communicate with farmers on eventual changes in the market prices.

At the policy level, the impact of flock size on farmers' inclination to engage in long-term relationships may help the government to improve its policy instruments aiming to support farmers owning large flocks. The current policy of paying a price premium per litre delivered to dairies and milk collection points based on recorded transactions[1] may also be used for incentivising commercial (larger) farmers to establish closer relationships with buyers. A support scheme based on payments per head of small ruminants (minimum 100 to maximum 300 heads per farm) has been one of the main components in the government budgetary support (Volk, 2017). Conditioning this direct producer support scheme to the application of formal transactions between farmers and dairy owners might result in better chain coordination, formalisation of the sector and improved food safety.

This study has some limitations that caution against generalising the findings. Firstly, it focuses only on the small ruminant dairy value chain and the findings may not be entirely relevant to the rest of the dairy sector (relying on the cow milk). Secondly, our model explains a relatively small part of the variability of exchange relationships, focusing on only three, albeit important, variables. Future research should consider other explanatory variables related to exchange relationships in the dairy sector such as physical proximity (i.e. site specificity) (Joskow, 1985) of alternative

[1] Decision of the Council of Minister's No 91 dated 10 February 2016: "On determining basic criteria, sectors to be supported and measures of support, for year 2016".

clients (dairy processors) for dairy farmers, specialisation of both farm and dairy on some specific products that require a certain degree of coordination (i.e. inter-firm co-specialisation) (Dyer, 1996), power distribution (Fischer, 2013) as well as other regional and farm characteristics. Thirdly, the study investigated only the (farmer) supplier's side at a given moment – future research using longitudinal data collected by both sides of the dyad might help to better understand the dynamics of long-term business relationships including feeding back of long-term relationships on investment in specific assets and trust. And, lastly, while in our sample spot market exchange overweighs long-term relationships, there are areas where a sustainable relationship is clearly more widespread than in the rest of the sample. Understanding the determinants of such phenomena calls for further research, including the use of qualitative methods.

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Annex: Factor analysis for perceptual measures with varimax rotation.

Items of three constructs	Factor*	
	F1	F2
I (as a supplier) can be trusted by my buyers	0.893	-0.089
I am very committed to the relationship with my main buyers	0.772	-0.068
The relationship with my buyers deserves maximum attention	0.843	0.019
Buyer/s is/are satisfied with my products	0.837	0.063
The demand for our products is unstable	0.050	0.796
The prices for our products are very unstable	-0.003	0.884
My buyer/s frequently changes/change the request for products qualities and standards	-0.112	0.840
Percentage variance explained	39.5	30.2

*Underlying dimensions as two factors: F1 = trust, F2 = uncertainty
Source: own data