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Determinants of sustainable relationships in the dairy value chain in transition countries – the case of Albania

Gerdoci, Shkreli, Zhllima* and Imami

Agricultural University of Tirana

*Presenting author

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Country bacground

- Dairy production is considered a priority of GoA
- The livestock sector counts for about half of the AO value
- A coping mechanism for poor households, leading to a rapid growth
- A trend of consolidation and improving chain organization
- Still highly fragmented, informal and constrained by low quality and safety

Cheese supply balance

Category	2000	2005	2010	2013	2014	2015
Domestic production	8,404	13,947	13,527	13,386	12,685	12,259
Export	0	0	3.5	2.8	0	10
Import	669	1,550	1,294	1,188	978	1,445
Domestic supply	9,073	15,497	14,818	14,571	13,662	13,694
Import/supply	7.4%	10.0%	8.7%	8.2%	7.2%	10.6%

Rationale

- Milk collection and distribution system is scarcely developed-milk collection is a major cost factor
- Farm size is a challenge: Large units sell to processors while small tend to carry direct sales
- Dairy units are in some areas situated in near-monopolistic markets and milk is perishable due to lack of milk cool chains
- Production cycles reveal opportunistic behaviours from both sides
- Improved coordination between farmers and processors=>better safety and quality standards=> increase competitiveness

Theoretical bacground

- High transaction costs-related to uncertainty and opportunistic behaviours
- Relational governance a hybrid form which bring lower opportunism
- Economic models of relational governance (Klein, 1996) highlight the role of repeated exchange in motivating and sustaining long-term ties and minimizing bargaining costs stemming from asset specificity and uncertainty (Dow, 1987).

Theoretical bacground cont

- Social networks “a set of nodes linked by a set of social relationships”
- Relational exchange is based on a social component, largely represented by trust.
- Trust is key factor influencing satisfaction and long-term orientation of the exchange relationship (Geyskens et al. 2006)

Objective

To analyze the factors that affect sustainable relationships, between farmers and buyers (processors) in the Albanian dairy chain building on network theory and TCE.

Hypothesis

Hypothesis 1 – trust and sustainable relationships

- Trust reduces transaction costs by reducing or eliminating both ex ante and ex post *opportunism*
- *Sustainable and long-term relationships based on trust are an alternative to vertical integration and contracts (Schulze et al. 2006; Claro and Claro, 2004)*
- *Hypothesis 1: Trust is expected to be positively associated with the propensity of farmers to establish sustainable relationships with their buyers.*

Hypothesis cont

Hypothesis 2 – uncertainty and sustainable relationships

- Behavioural and price uncertainty call for stable relationships- increase safety and volume
- **BUT...** Severe environment uncertainty may motivate channel partners to remain flexible and develop temporary relationships
- *Hypothesis 2: Increased uncertainty is negatively associated with likelihood for farmers to establish sustainable relationships with buyers.*

Hypothesis 3 – asset specificity and sustainable relationships

- *Hypothesis 3: Investment in specific assets (or the size of the livestock flock) is likely to positively affect farmers' relationships with their buyers*
- More they invest increasing their flock the more their assets are specialized to the exchange relationship (monitoring, advisory, etc).

Methodology

Data

- Farm survey in 2015 a random sample of 335 farmers (using electoral lists in targeted regions)
- SPPS module of Complex Sample was used to select the sample.
- 15 villages were selected out of the full list for each region.

Empirical model

- Binary logistic regression model is used to estimate the farmers' likelihood to engage in sustainable relationships. This model was selected considering the dichotomous nature of the dependent variable.

$$Ln(\frac{P_i}{1-P_i}) = a + b_i x_i + ... + c_i z_i + e$$

- Where P_i, the probability that the supplier *i* is engaged in sustainable relationships;

Details of Constructs and Measures

Construct and Concept	Operationalization	Number of items	Measurement
Dependent variable			
Sustainable relationships	a) Repeated exchange with selected buyer	1	*Dummy*, 1= sell to reliable buyers , 0= spot market exchange
Independent variable			
Trust	a) I (as a supplier) can be trusted by my buyers b) I am very committed to the relationship with its main buyers c) The relationship with my buyers deserves maximum attention. d) Buyer/s is/are satisfied with my products	4	5-points scale (1 = strongly disagree, 5 = strongly agree)
Uncertainty	a) The demand for our products is unstable b) The prices for our products are very unstable c) My buyer/s changes frequently the request for products qualities and standards	3	5-points scale (1 = strongly against, 5 = Strongly agree)
Specific assets	a) Flock size	1	Logarithm of flock size

Variables

- Construct Validity for the two perceptual independent variables
- Loadings are above the acceptable standard of 0.32 proposed by Tabachnick and Fiddell (2007).
- A logarithm of flock size in order to linearize the relationship

Descriptive statistics

Variables	N	Minimum	Maximum	Mean	Std. Deviation
Flock size	315	30	200	86.70	53.463
Ln (flock size)	315	3.40	5.30	4.2705	.62637
Trust	315	1.00	5.00	4.1048	.59367
Uncertainty	315	1.00	5.00	3.5915	.83556

Results of the logistic regression

Variables	B	S.E.		Sig.	Exp(B)
Trust	.252	.057	19.845	.000**	1.286
Flock Size	.763	.197	14.931	.000**	2.144
Uncertainty	-.120	.050	5.780	.016*	.887
Constant	-6.375	1.433	19.783	.000**	.002

**p<0, 01, *p<0, 1

Results of tests

- A significant positive relation between both trust and flock size and sustainable relationship as well as a negative relation between uncertainty and sustainable relationship.
- The correlation coefficients between the two independent variables trust and uncertainty is not significant- no multicollinearity.
- Strong variability of independent variables (e.g., standard deviation for flock size is 53.43).
- *Hosmer and Lemeshow* test assessing the goodness of fit of a model shows $p>0.05$ (0.571) ensuring the validity of our model.
- The classification table shows that 65.1% of the outcome was predicted by the model
- *Nagelkerke R Square* shows that round 18% of the variance can be attributed to the independent variables.

Main findings

- The study analysis the factors that influence farmers' propensity to build long term and sustainable relationship with their buyers using transaction cost and network theory.
- 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 (e.g., Dyer and Sing, 1998; Zaheer and Venkatraman, 1995; Schulze et al. 2006; Claro and Claro (2004).

Main findings cont.

- Uncertainty has a significant negative relationship with farmers' propensity to engage in sustainable relationships.
- Levels of behaviour uncertainty leads to high transactions costs as argued by Gerdoci et al. (2016) and lower levels of trust as argued by Suh and Kwonb (2006).
- Farmers tend to remain flexible, not committing to a single business partner.
- Investment in specific assets is found to positively affect sustainable relationship as expected, in line with TCE (Williamson, 1983)
- Farmers with large flocks tend to engage in sustainable and long lasting relationships.

Implications

- Results might benefit dairy owners to make more efforts in building sustainable relationships with farmers.
- Improving communication and exchange of information with farmers in order to reduce uncertainty and build trust-collective action
- Mitigating volume uncertainty during peak season, when many dairy appear to "suffer" from oversupply, appears to be important for farmers=inrease coldostorage
- The impact of flock size on farmers' inclination to engage in sustainable relationships calls for measures in supporting increased flock size.

Limitations

- Other subsectors? Cattle?
- Other explanatory variables related to exchange relationships in the dairy sector such as physical proximity of alternative clients (dairy processors) and control variables for farmers
- Study investigated only the (farmer) supplier's side at given moment-dyadic relation

Thank you!

Pearson Correlations

Variables	Ln (Flock Size)	Trust	Uncertainty
Ln (Flock Size)	1.000		
Trust	0.008	1.000	
Uncertainty	-0.019	-0.051	1.000

Classification table

	Predicted		
Observed values	Sustainable relationships		Percentage correct
	0.00	1.00	
0.00	132	44	75.0
1.00	66	73	52.5
Overall percentage			65.1