5. GOVERNANCE AND CONTRACTUAL STRUCTURE IN THE VEGETABLE SUPPLY CHAIN IN ROMANIA

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Abstract

The paper studies the relationship type and contractual aspects in the Romanian vegetable supply chain and farmers' contracting choice. The paper draws on Williamsons' governance contractual structure of non formal and formal relationship existing between farmers and buyers in order to see what type of contractual relationship is prevalent in the vegetable supply chain. It also tries to empirically analyze the key determinants of vegetable farmers' contracting choice drawing on the transaction cost theory. The analysis is both qualitative and quantitative and uses binary choice models in order to assess the contractual choice of the vegetable producers. The analysis reveals that informal contractual relationships are prevalent on the market while in many cases the contractual enforcement is at stake.

Keyword: binary models, institutional change, vegetable chain, Romania
JEL Classification: Q13

I. Introduction

The dynamics of agrifood chains and the globalization process which has spread fast in recent years have caused dramatic changes in supply chains of transition countries, including Romania. Although several studies were carried out in order to study the type of contractual relationship at the European level (Dries and Swinnen 2004, Cungu et. all 2008, Minten et al., 2008), there is no empirical evidence about Romania. The Romanian vegetable farm structure is characterized by duality comprising a very large number of small farms (about 90%) and a small number of large-scale farms. The analysis is necessary to assess the needs and constraints of contracting choice of farmers and to see the relationship type and contractual aspects present in the vegetable supply chain.

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After previous vertically integrated supply chains in Central and Eastern European Countries (CEEC) collapsed in the early transition years with privatization and company restructuring, vertical coordination recently has started to increase again only slowly, because of a combination of factors, such as rising standards and major market imperfections (Gow and Swinnen, 1998, 2001). In Romania, public institutions are still ineffective in ensuring contract enforcement. The lack of contractual enforcement or extremely poor enforcement hinders the development of institutional instruments which might lead to increased vertical coordination. In addition, this impedes farmers to adapt to the dynamics of agrifood systems, involving high transaction costs. In the last 20 years, the vegetable supply chain in Romania experienced a dramatic evolution following the destruction of the former fruit and vegetable trading companies which led to the year-round domestic vegetable supply failure and production fragmentation. Moreover, recently, stricter quality requirements imposed by modern retail chains are hardly met by small scale farmers but even when these requirements are met by larger farmers the contractual terms are not respected or the retail chains even avoid writing down contracts.

In contrast to producers in industrialized countries who benefit from appropriate infrastructure, effective institutional systems and agricultural policies that facilitate a widespread adoption of good agricultural practices and environmental standards, producers in emerging economies may encounter severe difficulties in complying with increasing levels of quality standards. These difficulties generally result from market failures characterizing the vegetable production (Swinnen and Vandeplas, 2007) and the informational, financial and educational constraints of producers in these countries. In Romania, for instance, some farmers assert that these constraints could be mitigated through increased vertical integration, i.e. production-processing-trading.

The emergence of modern retailing sector leads to additional adjustment problems for agricultural producers, especially in sub-sectors dominated by fragmented and small-scale farms (Dries et al., 2004, Reardon and Swinnen, 2004). The globalization and the multinational system also have great institutional implications for the agri-food systems. The globalization practically determines an increase in the capital and information flow, technological changes, foreign direct investments, global economic integration, thus facilitating agriculture industrialization and the vertical integration of the agri-food systems (Pinstrup and Anderson, 2002). Recent research studies provide a thorough overview of the impacts of globalization of the food supply chain on small scale farmers in developing and transition countries (Codron et al., 2004, Reardon et al., 2009, Swinnen, 2007). These studies highlight the importance of market imperfections on both product and input markets, hindering the farmers' capability to have access to modern supply chain.

In this context, the objective of this paper is to study the relationship type and contractual aspects in Romanian vegetable supply chain and to assess the main determinants of farmers' contracting choice. The paper is organized as follows: Section II presents some aspects regarding the contractual governance structure and transaction cost theory, Section III offers an overview of the vegetable sector in Romania, Section IV presents data and methodology used, Section V reveals some empirical findings and discussions followed by conclusions.

II. Governance contractual structure and transaction cost theory

The governance structure of global chains is shaped by institutions and laws. According to Humphrey and Schmitz (2004), the main parameters of contractual governance structure refer to ”what, how, how much and when to produce”. Thus, the governance structure refers to the relationship between firms/companies and the institutional mechanisms by means of which the explicit coordination is made and the activities on the chain are carried out. Vertically coordinated markets may offer farmers the opportunity to produce and sell differentiated products with high value added. By establishing commercial relationships with processors and retailers on these markets, farmers may obtain premium prices, thus uptakeing more of the final price paid by consumers (Fairbairn, 2003). Nevertheless, the high standards of vertically coordinated markets impose challenges and constraints to farmers who do not have modern production and marketing systems. Transaction costs (TC) are associated with the exchange process and the size of exchange determines the organization form of the economic activity. Also, transaction costs are affected by the information asymmetry which may lead to the so-called limited rationality and/or opportunistic behavior of one of the parts. Contractual relationships may offer some relaxation principles for these problems (Menard, 2005). Nevertheless, it is considered that it is almost impossible to draft complete contracts (Williamson, 2000). Due to positive transaction costs and limited rationality, the contract is suggested as an analytical frame (Williamson, 2004). Hobbs (1996, 2004) argues that in case of contemporary retail chains, cooperation and information exchange may contribute significantly to transaction cost reduction.

As far as it concerns relationships Gorton (1999) shows that these become more complex with increasing level of formality and of vertical co-ordination. While price, supply and demand represent the core of spot market relationships, property rights, trust and negotiations increase with growing vertical collaboration.

Contracts may also be analyzed by looking at Williamson’s governance structures, according to which two relationship types, formal and non-formal, can be defined: non-formal relationship types refer, on the one hand, to spot or ‘open’ markets (immediate transaction at actual prices) and, on the other hand to repeated market transactions with the same buyer/supplier with non-formal, non-written contracts. Williamson (1991, 2000) defines formal relationship as: a) formal (written) bilateral contracts (contract terms and obligations are legally enforceable) and b) financial participation arrangements (both parties are legally independent entities). Williamson considers that the way a transaction is organized (e.g., spot or coordinated market) depends on "rational economic reasons". He suggests three main dimensions of these reasons: 1) asset specificity; 2) uncertainty; and 3) frequency. Asset specificity refers to the degree to which a particular asset can have alternative uses; uncertainty is usually given by the incompleteness of contracts, given imperfect information, which can lead to opportunism of one of the parties to an agreement; and frequency refers to the rate of repetition of a transaction.

In the CEECs, the empirical literature on contractual arrangements in agriculture (Cungu, 2008) focuses on several hypotheses, such as: the existence of a written contract increases at the frequency with which exchange takes place and the extent to which the transaction needs specific investments; the volume of quantity delivered will be positively associated with the propensity to write formal contracts; the history and trust in partners will increase the probability of drawing up written contracts. In addition, we would like to test other hypotheses such as: contractual penalties due to defaults in quality and standard requirements may decrease the intention to choose a formal contract and better prices and payment mechanism will increase the probability of choosing a written contract These hypothesis will be checked in this research paper and their expected sign is presented in Table 1.

Table 1

Summary of hypotheses regarding the contracting choice determinants

Hypothesis	TC hypotheses		TC hypotheses
H1: Quantity delivered influences the choice of contract	+	H4: History and trust with the buyer	+
H2: Frequency of delivery and the associated investment need	+	H5: Contractual penalties impact	-
H3: The role of price and payment mechanism	+		

Source: Transaction Costs (TC), Theory, empirical studies and author's own contribution.

To prove these hypotheses we used data obtained by caring out a survey in S-E of Romania, a region which has tradition in cultivating vegetables.

III. The vegetable sector in Romania

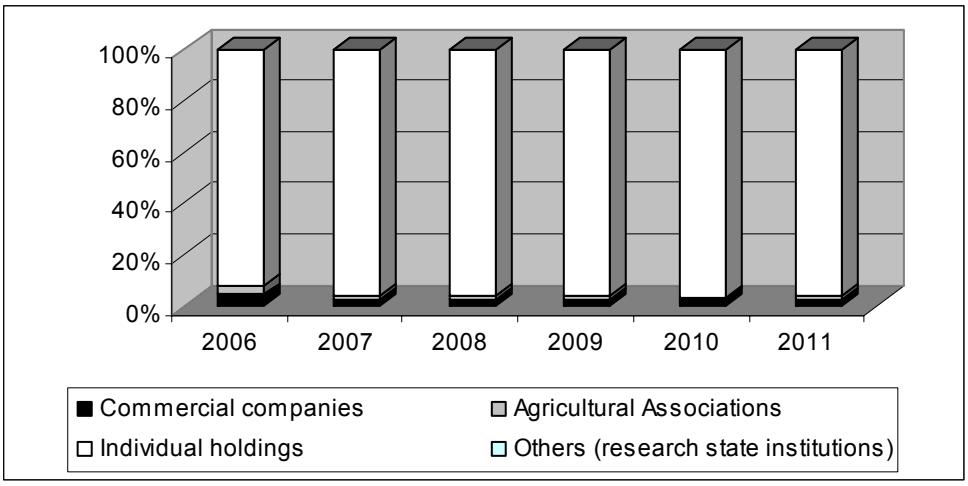
In 2010, the vegetable production value accounted for 24% of the total crop production value. Nevertheless, following the EU integration, the vegetable supply chain seems to be the most negatively affected sector, due to the high share of imports and the farmers' impossibility or incapacity to maintain stable contractual relationship within the chain. In addition, many of them are not able to enter or form producers' groups either because of lack of trust or willingness to cooperate. The high fragmentation and dispersion of cultivated areas (especially for field vegetables) is a result of the reversion return of the private property in agriculture after 1990. The high number of existing plots creates major limitations for technological upgrading (agricultural works, production and marketing structure, professional training of farmers, updating farmers' knowledge and information) and contributes to the increase in production and transaction costs. At the same time, due to the lack of experience in using the insurance instruments (to deal with uncertainty) and to the lack of trust in the modern retail system which involvs transaction costs, any unfavorable weather conditions, infestation with pests and diseases result in direct losses for farmers. Also, the existence of a very high number of farmers who produce for self-consumption but at the same time sell part of production at the farm gate or through intermediaries do not allow for a clear delimitation between the commercial farms and the subsistence farms

and consequently impede upon the adoption of adequate and coherent fiscal policies. All these factors directly impact the price fluctuation, the farmers' incomes, the market orientation of this sector, and the competitiveness of the sector.

In 2010, the land area for vegetables accounted for 3.3% of total cultivated arable area. At the European Union level, the share of area for vegetables is quite similar; the difference is that currently in Romania the consumption demand is not fully covered by the current domestic supply. The main cultivated vegetables were the following: tomatoes 18%, cabbage 17.7%, and dry onion 14%. The individual holdings have the highest share in the cultivated areas in the vegetables sector (over 95%) (Figure 1).

Figure 1

Share of cultivated areas by types of holding



Source: NIS, Farm Structure Survey, 2007 and tempo on line 2012.

The figure depicts the situation at national level; in the region where the analysis was carried out, the vegetable production is also obtained in the individual holdings (more than 96%).

At the beginning of the 1990s, agro-industrialization and the Romanian vegetable processing sector faced a major lack of quality raw material. There were several reasons which contributed to this situation: a) lack of trust among farmers to deliver their vegetable production to the processing companies due to the risk of getting no payment, (Gow and Swinnen, 1998), b) inexistence of direct access to basic production factors (seeds, fertilizer, capital); c) the low quality of raw material supplied by farmers due to the lack of necessary inputs to produce quality raw material. Nevertheless, in 2000, agro-industrialization and globalization started to gain ground on the Romanian vegetable supply chain, thus, at present, in Romania 42% of total grocery sales are made through modern retail chains out of which 25% are hypermarkets, 9% supermarkets and 8% discounting stores. At the same time, in the recent years an increase in consumers' appetite for shopping at modern retailers has been noticed, i.e. 70% of consumers in the urban areas. Practically, the rapid

increase of modern retail formats coincided with the accession to the European Union, which also led to the adoption of food safety and quality standards required by the EU legislation. However, according to the information from the main players that operate along the vegetable chain, it can be mentioned that there are differences with regard to the food safety and quality requirements between the modern retailiers and the traditional shops that are obviously subject to the same EU regulations.

As far as it concerns the processing sector, 27 companies are recognized as prime-processors. Up to now, 60 mil. euro have been invested in processing plants. The main problem faced by these companies is related to the lack of an adequate supply of raw materials, in due time and under safe conditions.

IV. Data collection and methodology

The paper is based on data provided by 280 farmers, 6 processors and 6 supermarkets located in the S-E region of Romania following a survey conducted in this region in 2011. Based on over 6,000 potential interviewes 292 respondents were randomly selected from the S-E vegetable production area. In total, 292 structured questionnaires were applied to farmers', processors' and retailers' representatives. Among the investigated farmers, 34% of farmers cultivated vegetables on less than 1 hectare, 51% of farmers cultivated vegetable for commercialization on areas of 1-5 hectares, and 5% of farmers cultivated vegetables on areas between 10 and 50 hectares. Regarding the interviews with the representatives of retail chains, they were chosen randomly based on their willingness to answer to questionnaire. The analysis is both qualitative and quantitative and takes into consideration stakeholders' answers to the questions concerning the relationship type and contractual aspects along with a set of questions regarding farmers' contracting choices. An open comment has been also introduced in the questionnaire.

The description of the methodology and the data collection methods were structured as a set of criteria and questions that were answered and analyzed by employing the structure proposed by Williamsons. In addition, binary logistic models were used in order to perceive the determinants of farmers' contracting choice.

The interviews with representatives of retail chains referred to issues related to the procurement mechanism and the contractual governance structure (quantity, frequency, quality and food safety standards, price and payment mechanism, premium for quality, contractual penalties) and they were used for qualitative analysis. As regards, the questionnaires applied to farmers and producers groups, due to reduced samples, the results cannot be generalized but they offer significant information regarding the contracting modalities and farmers' contracting choices. The empirical analysis takes into consideration farmers' answers regarding their contracting choice.

All the measurements were done using the Likert scale, where 1 represents total disagreement and 5 total agreement with a set of statements referring to certain variables, which potentially may influence the contracting choice of farmers:"the importance of price and payment mechanism", " the importance of frequency and quantity delivered, "the fulfillment of food safety and quality standards", "the importance of history and trust in the partner", „the importance of the investment

decision" and "the role of contractual penalties". In order to see the contracting choices of farmers we used binary models. In the dependency analysis, when the dependent variable is discrete, the most useful models are probability models. In this research we used as dependent variable the type of contract. The dependent binary variable takes on value 1 if the contract is formal and 0 if it is based on oral agreement. Usually, a written contract between farmers and modern retailers includes contractual stipulations on: price and payment mechanism, frequency and quantity delivered, food safety and quality standards and they are more elaborated than contracts between farmers and traditional middlemen.

Explanatory variables

In order to determine the probability of choosing a certain type of contract**, the quantity and frequency of delivery** was used as an independent variable. The quantity delivered has an important role in choosing a type of contract. Usually, large commercial farms, which produce large scale quantities, prefer written contracts, while small farmers prefer oral contracts. Accordingly, the higher the quality delivered, the higher the probability to choose a written contract.

Price and payment mechanism is another qualitative, independent variable used in the model. This variable is very important because farms usually choose the type of contract according to the price and the moment of payment (cash, i.e. on the spot, or after a certain number of days, between 20-30 days).

Food safety and quality standards of delivered production represent an important aspect stipulated in a written contract, but these aspects are taken into consideration also in oral contracts.

Contractual penalty is another variable considered in the model. Usually it appears in written contracts. Practically, according to institutional and transaction cost theory, a contract is not considered totally complete due to limited rationality.

Table 2 below, presents a descriptive statistics of variables considered. We notice that the mean is close to 3, for three of the variables considered which means that farmers did not express a clear position regarding their options for a type of contract. A meadian of 2 for three variables denotes that farmers cannot provide the quantitities requested by retail chains, they cannot make invesment decision and the contractual penalties are perceived as being disadvantageous.

Table 2

Descriptive statistics of independent variables

	Quantity	Price and payment mechanism	Food safety and quality standards	History and trust	Investment specificity	Contractual penalty
Mean	2.61	2.68	2.76	2.7	2.26	2.25
Median	2.0	3.0	3.0	3.0	2.0	2.0
Maximum	5	5	5	5	5	5
Minimum	1	1	1	1	1	1
Std. Dev.	1.33	1.17	1.11	1.10	1.23	1.3

Source: Own calculations based on stakeholders' interviews.

As already pointed out, the models used are binary models and logit models. The logit and probit regressions are associated to the estimation of the choice probability (Greene, 2000) and they are based on the idea of the individual's utility maximization. A regression model can be defined in the following way (Jula, 2012):

$$y_i^* = a_0 + \sum_{j=1}^{k} a_j x_{ij} + e_i$$

where y_i^* cannot be observed (it is a latent variable). What can be noticed is a dummy variable which might be defined as follows:

$$y = \begin{cases} 1, & \text{when } y^* > 0 \\ 0, & otherwise \end{cases}$$

According to the theory, the probit and logit models are different with regard to the specification of e_i error distribution in the regression equation. In this type of model we admit the existence of a latent (unnoticeable) variable for which we can notice only the dichotomic achievement. For instance, in this research the noticed y_i^* dummy variable can be defined as desire or probability to choose a written contract. In this study, the general model used has the form:

Contracting choice = $\alpha + \beta_1 X_1 + \beta_2 X_2 + ...\beta_6 X_6 + \varepsilon_i$

where: α, β_1, β_2, …. β_6 are the estimated parameters and,

X_1= quantity and delivery frequency

X_2= price and mechanism payment

X_3= food safety and quality standards

X_4= history and trust in the partner

X_5= asset/investment specificity

X_6= contractual penalties

V. Empirical findings

5.1 Contractual relationship types

The relationship types as described by Williams are classified into two categories, namely formal and non-formal. Respondents were asked to present which type of contractual relationships they used in their business (Table 3).

Table 3

Frequency of formal relationships

	Farmer–middlemen	Farmer-processor	Farmer-retailer	Processor-retailer
Formal relationship %	14/280 5%	28/280 10%	20/280 7%	2/6 33%

Source: Field survey, 2011.

Table 3 reveals the relationship type for the three chain stages. The answers show that the percentage of formal relationship is extremely low both at farmer-wholesaler level and farmer-processor level. A higher percentage of formal relationship can be noticed in the case of processor-retailer level. Retailers tend to choose more formal relationships with processors, in comparison with farmers, showing that downstream businesses are more likely to coordinate and organize their relationships more systematically and in a standardized way. Similar findings are also present at the European level (Fischer et al., 2007), with the difference that the percentages are much lower in Romania's case, especially at the farmer-buyer level.

As far as the relationship aspects are concerned, the farmers were asked to rate on a scale from 1 to 5 (1: extremely poor to 5: very good) their opinions on the following statements: the quality of the relationship, trust, contractual terms and the level of enforcement of the contracts. Table 4 reveals the answers of the interviewed farmers.

Table 4

Farmer-buyer relationship and contractual aspects

	Very good	Good	Neither good nor poor	Poor	Extremely poor
The history relationship with the buyer	8%	12%	20%	22%	38%
The respect of contractual terms	4%	11%	16%	27%	42%
The trust in our partner	5%	15%	25%	25%	30%
The enforcement of this contract	5%	6%	10%	31%	48%

Source: calculations based on the field survey, 2011.

The enforcement of the contract is seen as the biggest problem the farmers have to face, 48% of them answering that the enforcement of the contract is extremely poor. The level of trust in partners and the history relationships are seen as poor and extremely poor.

Table 5

Processor-retailer relationship aspects

	Very good	Good	Neither good nor poor	Poor	Extremely poor
The history relationship with the buyer	15%	26%	2%	40%	17%
The respect of contractual terms is	12%	25%	5%	42%	16%
The trust in our partner	16%	23%	6%	35%	20%
The enforcement of this contract	14%	23%	4%	37%	22%

Source: calculations based on the field survey, 2011.

The relationship and contractual aspects at the processor-retailer level (table 5) were assessed in a better light by the respondents, but still there was a lack of trust and a bad enforcement of contracts among stakeholders.

5.2. Contractual aspects

According to interviews with the representatives of the retail chains, the procurement of vegetables is generally organized at the level of the store in charge with the procurement of fruit and vegetables on the basis of written contracts with the local suppliers (mainly large vegetable farms such as legal entities or producers' groups). However, in certain cases, the procurement of vegetables is centralized through a distribution center that supplies several stores. As regards the support provided by retail chains to farmers, there is a very limited evidence of the existence of assistance schemes offered to farmers, which practically infringes the mutual benefit principle from the perspective of the transaction cost economics of the vertically coordinated markets. It is interesting that all the representatives of the producers' groups indicate that the most important benefit of the contracts with the modern retailers or specialized middlemen is that these partners provide written contracts, while the traditional intermediaries still mainly work with oral contracts. Usually, a written contract includes aspects regarding price, quantity and frequency of deliveries as well as quality and food safety standards that must be met, and these are more elaborated than the contract between farmers and traditional middleman. For instance, while only 45 % of the contracts between farmers and traditional wholesalers include conditions on the frequency of deliveries, these are included in 94 % of the contracts between farmers and modern retailers (Table 6). For the produces, the most important benefits of these written contracts are the reduction of market risk and the guaranteed sales.

Table 6

Contractual terms (% of contracts that include this aspect)

	Modern retailer	Traditional wholesaler
Quantity	94 %	71 %
Frequency of deliveries	94 %	45 %
Minimum quality requirements	91 %	50 %
Food safety requirements	79 %	45 %
Size, shape or colour requirements	70%	27 %
Price	45 %	27 %
Modality and time of payment	91 %	50 %
Premium for quality and/or large quantities	11 %	9 %
Penalties for non-respect of contract terms	42 %	20 %

Source: own calculations based on interviews with involved players.

The information obtained during the interviews confirms that there is a lot of heterogeneity on the market and the effects are quite contradictory. In general, the retailers indicate that they prefer to buy fruits and vegetables from large commercial farms (legal entities). However, when this is not possible, they get supplied from the small farmers through a specialized middleman. The representatives of producers'

groups revealed many constraints in the small farmers' deliveries to modern retailers. First, the procurement mechanism differs among retailers. Some modern retailers usually pay after three weeks or one month from the delivery of the product, which can represent a problem for the small farmers who do not have extra cash-flow to cover this period. Second, in order to deliver their production to the modern retail chains, the farmers must pay an entrance fee, the so-called "shelf fee", which is often too high for them. For instance, the representatives of producers' groups declared that the "shelf fee" can range from 10 % to 15% of the price that the farmer receives from the modern retailer for his products. This makes the price received by farmers belonging to producer group smaller compared to alternative marketing channels, the advantage being given by the scale economics of large quantity delivered. This result is contrary to the findings regarding higher prices received by Vietnamese farmers belonging to producers groups when they supply the supermarkets (Moustier et. al., 2010). Since 2008, the employers' organizations and trade unions have recognized that it is very difficult for the small farmers to deliver their products to the supermarkets as they cannot supply sufficient quantities of produce. They consider that the "shelf fees" asked by modern retailers are significantly higher for the local producers who can supply smaller quantities compared to those who can deliver large quantities; this makes extremely difficult the access of small producers to modern retail chains. At the same time, farmers and their representatives point out that the high quality standards (several certificates chemicals use) and the poorly developed packaging and sorting infrastructure are significant constraints which prevent them to deliver their products to modern retail chains; this opinion was also highlighted in the studies of Swinnen and Van Herck, 2010.

As regards the quality requirements, it is important to mention that there are no significant differences with regard to the quality standards of the supermarkets compared to the standards of the small shops (both require extra products and/or class I products). However, farmers do not consider impossible to draw contracts with modern retailers, but they highlight the importance of cooperation between the small farmers, so that they are able to deliver sufficient quantities to the large retailers. To overcome this problem, the role of producers' groups should be highlighted, as they help farmers to get connected to the market, by ensuring assistance schemes, such as extension services and storage facilities, input supply, as well to establish formal contacts between farmers and modern retailers. Also, it should be pointed out that due to price volatility it may happen that the small farmers bridge the contract with the producers group, thus impeding a good functioning relationship. Bridging contracts and poor contract enforcement is one of the biggest problems the Romanian vegetable chain confronts with.

5.3 Determinants of farmers' contractual choice

In order to see the determinants of the relationship choice, the farmers were asked to rank from 1 to 5 on a Likert scale statements referring to quantity and delivery frequency, price and the mechanism payment, quality and food safety requirements, history and trust in the partner, the investment making decision. For this analysis, a binary logistical model was used, where the formal relationship was (1) and informal relationship (0). The results are presented in Table 7:

Table 7

Binary logistic regression results

Variables	Logit model 1		Logit model 2	
	Parameters estimated	Z statistic	Parameters estimated	Z statistic
Quantity and delivery	1,51	1.90	1,72*	5,91
Price and mechanism payment	0.85	0.89	0,40**	1,61
Quality and food safety requirements	0.97	0.86	-0,16	0,54
History and the trust	0.93	0.77	-0,04	0,12
Investment decision	0.34	0.54	0,37**	1,99
Contractual penalties	4.55	3.25		
R^2	0.94		0.52	

**Statistically significant at 1%.*

***Statistically significant at 5%.*

In the first model, the large number of estimated coefficients which are not statistically significant and the McFadden R^2 very high, i.e. 0.94 might indicate multicolinearity of variables. That means there is a need to reconsider the model or to drop some variables. Following the Wald test we decided to drop the variable contractual penalties and the Logit model 2 results provides better and more statistically significant estimated coefficients. The Wald test suggests that only two estimated coefficients are not statistically significant.

The results reveal the importance of quality and delivery frequency, investment decision and the price and payment mechanism in choosing a formal contract. Negative (positive) estimates indicate that an increase in the value of the independent variables corresponds to decreasing (increasing) probability of choosing a formal relationship instead of an informal relationship. In other words, longer-term oriented farmers who plan investments are more likely to choose a formal contract. Long-term investment orientation is an important step to create a reliable formal contractual relationship for planning and securing future supply or sales. Quantity and delivery frequency has an important influence upon formal contract choice and it has the expected sign, i.e. larger farmers are more likely to choose written contracts than smaller ones. The estimated coefficient for the price and payment mechanism is positive, indicating the fact that the higher the price and the more convenient payment mechanism, the higher possibility to sign a formal contract. Nevertheless, one should point out that the payment mechanism offered by the modern retail chains, usually made after 20-30 days from delivery, does not provide smaller farms any incentive regarding their option for a formal contract. One would expect the history and the level of trust between farmers and their partners to play a significant role in the choice between formal or oral contracts. However in this model, the variable regarding the

history and trust with the partners does not appear to significantly influence the type of contract. The variable regarding quality and food safety requirements is not statistically significant and also the sign of estimated coefficients is not the expected one. This might be explained by the fact that farmers assess the quality and food safety requirements as being a priory met (Romanian vegetables are much appreciated for their taste, less importance being given to shape and color in the context that the chemicals usage is the correct one) and as a consequence this does not represent the biggest issue in opting for a formal or an oral contract.

VI. Conclusions

Effective business relationships can help to reduce environmental uncertainty (e.g., by securing a more stable inflow of orders); contribute to better access to crucial resources (e.g., raw materials, capital, specialized skills); and/or result in higher business productivity (e.g., by enhancing loyalty among suppliers) (Dyer and Singh, 1998). Nevertheless, the results obtained reveal that in Romania's case there is a high degree of uncertainty among stakeholders both in terms of contractual relationships and contract enforcement. The share of formal contractual relationship is higher at the processing-retailing level which is in line with the EU findings, but much lower than in the EU both for the farmer-buyer and the processor-retailer levels.

The contracting choice determinants are mainly given by quantity and frequency of delivery as farmers consider their positive role only when they permit the security of their sales, especially from the perspective of a related investment.

According to the price and payment mechanism hypothesis, they should positively contribute to a formal relationship; the empirical analysis results combined with qualitative analysis suggest that farmers prefer written contracts because they deliver large quantities but the prices obtained and the payment mechanism are not satisfactory. This also invalidate the hypothesis presented in the literature review regarding the premium price which the farmer can receive, i.e. larger part of the final price paid by consumers. Actually, small farmers, for instance prefer oral contracts because the prices they get are higher and the payment modality is more convenient, usually cash at transaction's moment. At the same time, for example, when a price is fixed in the contract, an increase in market prices will increase the benefits for the producer when selling the product on the market (outside of the contract), and vice versa.

Food safety and quality requirements hypothesis was not proved in this research, as the estimated coefficient was not statistically significant and also the coefficient sign was not in line with expectations.

The hypothesis regarding history and trust could not be confirmed and this is explained by the large heterogeneity contractual relationship existent in the vegetable supply chain.

The general results lead to the conclusion that there is increased uncertainty in terms of what vegetable to produce and where to sell and it negatively impacts the farmers' revenues and investment decision.

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