

Chain governance structures: The case of the traditional food sector in the EU

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Abstract

One of the key success factors for facing today's challenges in business general and in agri-food chains in particular is the use of innovative chain governance structures. Based on New Institutional Economics this paper studies the different governance structures presented in traditional food chains in Europe. **First**, we use the Transaction Cost Economics' typology to develop an innovative tool tailored to identify the governance of transactions in different agri-food chains. **Second**, we tested our typology of governance structures on different traditional food products (cheese, beer, dry ham, dry sausage, white pepper) originating from three European countries (Belgium, Hungary and Italy). We conducted face to face interviews with 84 stakeholders from several traditional food supply chains using a structured questionnaire. Our findings illustrate that the suggested typology of governance structures is appropriate to compare the different governance structures. Future research should focus on validating the instrument in other food and non-food sectors.

Keywords: governance structures, supply chain, traditional food sector

1. Introduction and objective

The dynamic character of relations and interdependencies between the different stakeholders in business general and in agri-food chains in particular cause a constant challenge in today's business society. One of the key success factors for facing this challenge is the use of innovative chain governance structures. Sound chain governance structures allow us to apply mechanisms to control quality, to avoid opportunistic behavior of agents (Raynaud 2002; Raynaud et al. 2002; Raynaud et al. 2005). Further, these structures contribute fulfilling dynamic consumer and market requirements. As a result, there is a growing interest in governance structures recently (Goodstein and Boeker 1991). For choosing the most suitable governance structures, several variety of governance structures exist between spot market on the one hand and vertical integration on the other (Gereffi 2005). But in order to be able to select the most appropriate governance structures for our chains, we have to find our own way in identifying the

criterion that play a large role in determining governance structures. Further, the past, geographic and societal environment also have to be considered (Gereffi 2005). This is the underlying principle of our study being designed to fill these gaps by developing an innovative tool to identify supply chain governance structures. We aim to add to the Supply Chain Management literature as well as to New Institutional Economics by enriching the current state of art and by developing a novel tool of governance structures.

This paper is structured as follows: In the following part the methodology of the paper is presented. Next, the research results are discussed and finally conclusions are drawn as well as further research topics formulated.

2. Methodology

The above aim is addressed via a two-stage process: **1) Typology development:** development of a typology of bilateral governance structures, **2) Formatting and pilot testing.** This two-stage process has been developed adapting the methodologies used by Raynaud et al. (2002) and can be considered as an appropriate method for approaching governance structure analysis of supply chains.

a. Methods of typology development (Stage 1)

In order to evaluate diverse governance structures of the supply chains, it is necessary that we are capable to separate different governance alternatives. Therefore, in the first-stage of the process, the literature was reviewed to identify alternative governance structures. Search strategies were used to get an inclusive list of publications using keywords related to Transaction Cost Economics, governance structure, traditional food and supply chain. Searches were limited to English language publications. As a result, an innovative tool tailored to identify the governance of transactions in different agri-food chains has been developed inspired by the literature (Williamson 1973; Webster 1992; Peterson et al. 2001; Raynaud 2002; Raynaud et al. 2002; Raynaud et al. 2005; Schulze et al. 2006) containing seven main governance structures and nine differentiating criteria.

b. Methods of formatting and pilot testing (Stage 2)

Once the innovative tool tailored to identify the governance of transactions in different agri-food chains has been developed, a questionnaire has been compiled in the second stage of the

process. This questionnaire was then pilot tested to assess its feasibility between March and May 2007.

First, it was decided to conduct face to face interviews in three European countries (Belgium, Italy and Hungary). Second, five different traditional food product categories (cheese, beer, dry ham, dry sausage and white pepper) have been selected for investigation spread over the three countries. Third, different stakeholders within traditional food chains along these five product categories were segmented based on their role in supply chains (suppliers, focal companies and customers) and recruited. Details about the composition of the face to face interviews are provided in Table 1.

Table 1: Overview of face-to-face interviews

Country	Product	Participants ¹
HUNGARY		29
	White pepper	6 small sized white pepper processing companies (focal company) 2 medium sized white pepper processing companies (focal company) 5 white pepper growers (supplier) 3 retailers/wholesalers (customer)
	Dry sausage	3 small sized dry sausage manufacturers (focal company) 5 medium sized dry sausage manufacturers (focal company) 3 animal breeders (supplier) 2 retailers (customer)
ITALY		16
	Dry ham	4 small sized dry ham manufacturers (focal company) 2 suppliers of raw materials (supplier) 2 retailers/wholesalers (customer)
	Cheese	3 small sized cheese plants (focal company) 2 suppliers of raw materials (supplier) 3 retailers/wholesalers (customer)
BELGIUM		9
	Cheese	2 micro sized cheese plants (focal company) 2 milk suppliers (supplier) 1 wholesalers (customer)
	Beer	1 micro sized brewery (focal company) 1 medium sized brewery (focal company) 1 supplier of malt (supplier) 1 wholesaler (customer)
TOTAL		84 participants

¹Micro sized enterprise: < 10 employees, maximum EUR 2 million annual turnover

Small sized enterprise: >10 and < 50 employees, maximum EUR 10 million annual turnover

Medium sized enterprise: >50 and < 250 employees, maximum EUR 50 million annual turnover

Fourth, it has been decided, that the unit of analysis will be the five main transactions in agri-food supply chains, based on the model of Raynaud et al. (2002). This transactional model is

derived from the main production processes along the chain. The transactions are the following: 1) Transaction between farmers and their input suppliers, 2) Transaction between farmers and the first processing step, 3) Transaction between the first and the second processing steps, 4) Transactions between the last processing step and wholesalers and 5) Transaction between wholesalers (or the last processing step) and the retailers.

Fifth, during the interviews the respondents were first asked to graph their supply chain. Then each main transaction in the supply chain graph has been given a transaction number, as described above. After, each respondent were interviewed related to their main transactions. Suppliers evaluated transactions 1 and 2, the focal companies evaluated transactions 2, 3, 4 and 5, while customers evaluated transactions 4,5 (where relevant). The interviews were audio-recorded and notes were taken. An interview took between 10-20 minutes.

Sixth, the interviews have been analyzed and the distribution of the different governance structures along the five main transactions has been displayed. Further, the main governance structure in each country and in each sector has been presented.

3. Results

a. Results of typology development (Stage 1)

The literature review illustrates that a number of typology exists related to governance structures (Williamson 1973; Webster 1992; Peterson et al. 2001; Raynaud 2002; Raynaud et al. 2002; Raynaud et al. 2005; Schulze et al. 2006). The basis for the developed typology is the one used by Williamson (1973). This typology allows differentiation of relationships on a market-hierarchy axis (market, hybrids, firm). However, more comprehensive division among the different relationships is also feasible, as shown by Raynaud et al. (2002), Jagdev and Thoben (2001), Schulze et al. (2006), Peterson et al. (2001) and Webster (1992). With regard to these authors, we developed a thorough description of the different governance structures and differentiated seven different bilateral governance structures, namely spot market, non-contractual relationship with non-qualified partners, non-contractual relationship with qualified partners, contractual relationship, relation-based alliances, equity-based alliances and vertical integration. Table 2 shows the correspondence with the main typology found in literature and our typology.

Table 2: Typology for governance structures

Market	Hybrid				Firm	(Williamson 1973)	
Spot market	Long-term relation	Long-term relation with “qualified suppliers”	Bilateral written contract	Equity participation	Vertical integration	(Raynaud et al. 2002)	
Market transaction	Non-contractual agreement		Contractual agreement	Joint venture	Integrated company	(Jagdev and Thoben 2001)	
Spot market	Long-term relationship		Contract		Vertical integration	(Schulze et al. 2006)	
Spot/cash market			Specifications contract	Relation-based alliance	Equity-based alliance	Vertical integration	(Peterson et al. 2001)
Transaction	Repeated transaction	Long-term relationship		Buyer-seller partnership	Strategic alliances	Vertical integration	(Webster 1992)
Spot market	Non-contractual relationship with non-qualified partner		Contractual relationship	Relation-based alliance	Equity-based alliance	Vertical integration	<u>Our typology</u>

Table 3 specifies the 9 criteria we used to differentiate between the different governance structures. These are the followings: 1) Irrelevance of identity, 2) Length, 3) Ex-ante restriction on the choice of the partner, 4) Contract specifications, 5) Resource sharing, 6) Joint forces for mutual benefit, 7) Intensity of control and 8) Focus of control.

Table 2: Distinguishing criteria for the different governance structures

<i>Criteria</i>	<i>Spot market</i>	<i>Non-contractual relationship</i>	<i>Contractual relationship</i>	<i>Relation-based alliance</i>	<i>Equity-based alliance</i>	<i>Vertical integration</i>	
		with non-qualified partner	with qualified partner				
Irrelevance of identity	Yes	No	No	No	No	No	
Length	Short	Medium	Long	Long	Long	Long	
Ex-ante restriction on the choice of the partner	No	No	Yes	No	No	Yes	
Written contract	No/Yes	No	No	Yes	No/Yes	Yes	
Contract specifications	Price	General terms & objectives of the relationship	General terms & objectives of the relationship	All or part of each party obligation	Alliance agreement	Alliance agreement	Governance structure
Resource sharing	Everybody own its own resources	Everybody own its own resources	Everybody own its own resources	Everybody own its own resources	Everybody own its own resources	Each party put resources into a new entity	Common ownership
Joint forces for mutual benefit	No	No	No	No	Yes	Yes	
Intensity of control	Low	Low	Low	Moderately low	Moderate	Moderately high	High
Focus of control	Immediate transaction	Relationship	Relationship	Contract terms	Relationship	Property rights of stakeholders in limited joint entity	Property rights of stakeholders in full entity

Adapted from: (Webster 1992; Gardner et al. 1994; Van der Vorst et al. 1998; Steele and Beasor 1999; Davies 2000; Mair; Jagdev and Thoben 2001; Peterson et al. 2001; Raynaud et al. 2002; Claro et al. 2003; Humphreys et al. 2003; Trent 2005; Lu et al. 2006; Szabó and Bárdos 2006)

b. Results of formatting and pilot testing (Stage 2)

The questionnaire was formatted to interview suppliers, focal companies and customers. Item wording and response categories were determined based on previous studies. Consistency was maintained in question formatting.

At the first part of the interviews, the respondents were first asked to graph their supply chains. Two examples of the main structures of the investigated chains are presented in Figure 1 and 2.

Figure 1: Hungarian dry sausage chain

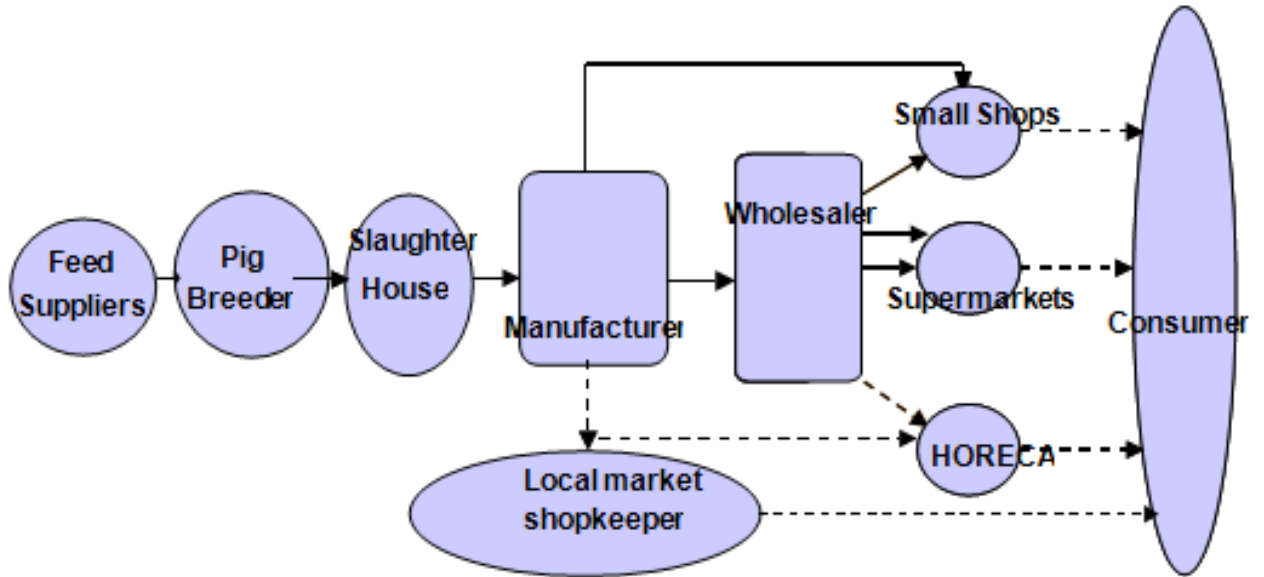
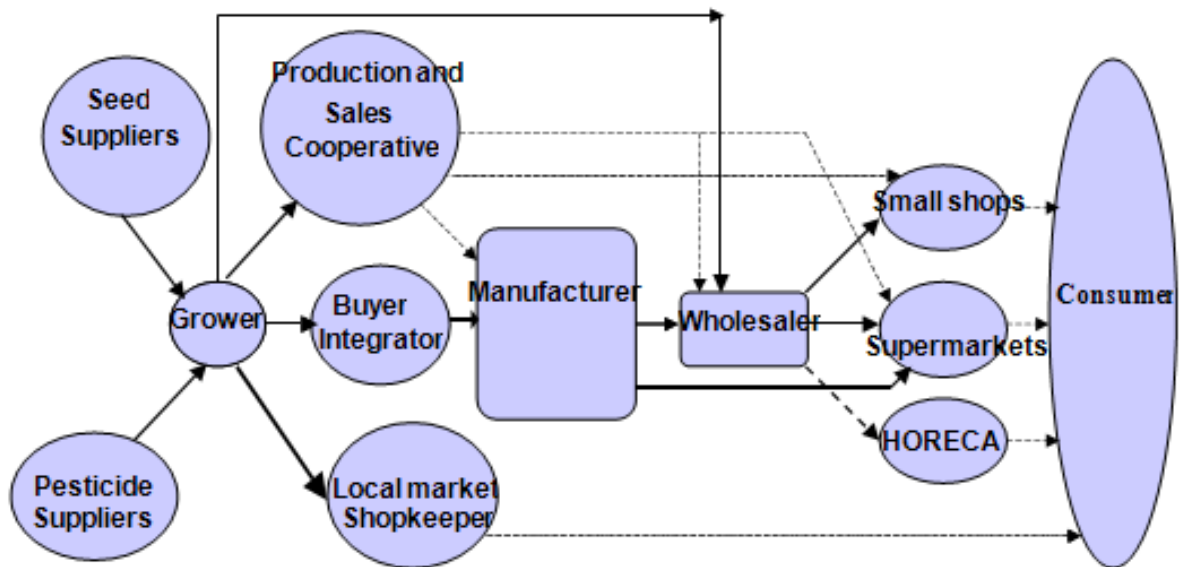
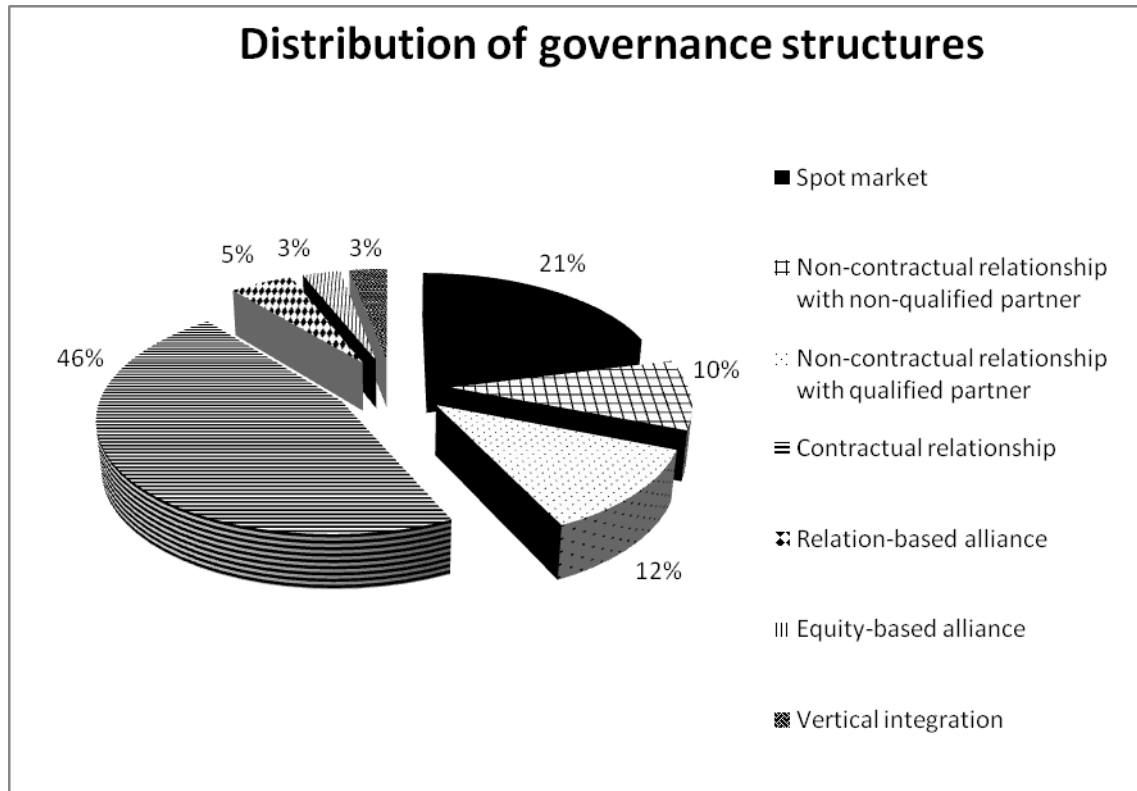


Figure 2: Hungarian white pepper chain



Then each main transaction in the supply chain graph has been given a transaction number and the main transactions have been analyzed. The distribution of the different governance structures in the total sample is shown in Graph 1.

Graph 1: Distribution of governance structures among the respondents



The graph shows the diversity of governance structures among the respondents. There is a high dominance of contractual relationship (46%) among the transactions, which is followed by spot market (21%). Non-contractual relationships with qualified (12%) and with non-qualified partners (10%) represent about the same proportion, while the rest of the governance structures (relation-based alliance (5), equity-based alliance (3) and vertical integration (3)) were presented least of all. The distributions of the different governance structures verify that the developed tool for identifying governance structures in agri-food chains are appropriate.

Now we present country and sector-based differences in governance of the supply chain (Table 3 and 4).

Table 3: Governance structures in the different countries (%)

	<i>Belgium</i>	<i>Hungary</i>	<i>Italy</i>
Spot market	0	29	11
Non-contractual relationship with non-qualified partner	0	0	33
Non-contractual relationship with qualified partner	25	7	17
Contractual relationship	50	64	6
Relation-based alliance	0	0	22
Equity-based alliance	13	0	6
Vertical integration	13	0	6
Total	100	100	100

The results show vital differences between the different countries. While in Hungary, only two governance structures exist and in Belgium, only four, in Italy, all the governance structures are represented. This supports previous research results (Raynaud 2002), saying that institutional environment influences the choice of governance structures. Hence, in the transitional Hungary, still spot markets and contractual relationships are dominant, and more trust-based relationships don't exist, such as relation-based alliances. Further, the relatively higher occurrence of non-contractual relationships with qualified partners in Italy and in Belgium could be explained by the higher number of PDO and PGI certificates (Giraud 2002).

Table 4: Governance structures in the different sectors (%)

	<i>Cheese</i>	<i>Dry ham</i>	<i>Dry sausage</i>	<i>Beer</i>	<i>White pepper</i>
Spot market	6,25	16,67	30,77	0,00	26,67
Non-contractual relationship with non-qualified partner	31,25	16,67	0,00	0,00	0,00
Non-contractual relationship with qualified partner	18,75	33,33	15,38	0,00	0,00
Contractual relationship	12,50	16,67	53,85	75,00	73,33
Relation-based alliance	12,50	16,67	0,00	0,00	0,00
Equity-based alliance	6,25	0,00	0,00	25,00	0,00
Vertical integration	12,50	0,00	0,00	0,00	0,00
Total	100	100	100	100	100

Table 4 shows the variation of the governance structures over the chosen sectors. Remarkably, the beer and the white pepper sector only represent two-two governance structures

(contractual relationship and equity based alliance; and spot market and contractual relationship respectively).

In order to see if country or sector-based characteristics drove the distribution of governance structures, further analysis is required.

4. Conclusion

In the frame of our research, we developed an innovative tool for identifying different governance structures of agri-food chains via a two stage process.

First, we reviewed the literature to identify alternative governance structures. As a result, an innovative tool tailored to identify the governance of transactions in different agri-food chains has been developed containing seven main governance structures and nine differentiating criteria. The seven main governance structures are the following: spot market, non-contractual relationship with non-qualified partners, non-contractual relationship with qualified partners, contractual relationship, relation-based alliances, equity-based alliances and vertical integration. Further, nine distinguishing criteria have also been selected to distinguish between the different governance structures. These are 1) Irrelevance of identity, 2) Length, 3) Ex-ante restriction on the choice of the partner, 4) Contract specifications, 5) Resource sharing, 6) Joint forces for mutual benefit, 7) Intensity of control and 8) Focus of control.

Second, the develop tool has been tested with 84 stakeholders of traditional food chains. The results showed the diversity of governance structures among the main transactions, though country and sector-based characteristics patterns have been identified, which could bias the results.

In conclusion, our findings illustrate that the develop tool is appropriate for identifying governance structures of agri-food chains. Future research could focus on testing the methodology and the developed tool in other food and non-food sectors.

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