The Contract Choice of Retailers in Hungarian Beef Sector

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Abstract

We present an empirical analysis about the contract choice of retailers in the Hungarian beef sector employing transaction cost economics. The frequency of transactions has negative influences on the duration of contract. Furthermore, large retailers are unlikely to have long term contract. We found some evidence that reputation reduces the probability of long term contract. Our results suggest that asset specificity has no influence on the duration of contract. In terms of specific aspect of contracts we find that price incentives in the form of bonus/penalty payments clauses are more likely to be incorporated in a contract of small firms.

Introduction

There is a growing literature on the role of contracts in agri-food chain. However, most of theoretical and empirical research focus on developed countries’ agriculture (e.g. Hueth et al. 1999; Goodhue 2000; Bogetoft and Olesen 2002; Goodhue et al. 2004; Fraser 2005). Recently there are some studies focusing on various governance structures of agriculture in transition countries employing different frameworks (e.g. Rudolph, 1999, Gow et al., 2000, Zaharieva et al. 2002, Fert and Szabó, 2002). But studies concentrating on the role of contract in transition agriculture is limited (Boger 2001; Boger and Beckmann 2004).

In transition countries the price systems are usually still working inefficiently. In these countries public institutions are ineffective in ensuring contract enforcement. The absence of enforceable contract to set up any kind of relationships between farmers and food processors or retailers has become extremely difficult. Therefore, searching new partners in the long run, relation-specific investments have been associated with high transaction costs for market players. In addition, this creates severe barriers for price discovery involving high transaction costs to co-ordinate market exchanges. In those sub-sectors, where any type of production contracts do exist, agricultural producers face the hold-up problems (e.g. delayed payment for delivered products, or ex post price reduction by retailers), which are stressed strongly by Gow and Swinnen (2000). Although the food processors and retailers have significant market power, they also struggle sometimes with difficulties to establish long run relationships with farmers.

Earlier papers usually focus on governance structures from producers’ point of view. Contrary to this approach, the aim of the paper is to explain retailers’ and wholesalers’ behaviour in a
transition agriculture employing the case of the Hungarian beef sector. We present an empirical analysis of the key determinants based on transaction cost economics. Our analysis is based on a survey among beef wholesalers and retailers in the central region of Hungary, in respect the choice of marketing channels.

The remainder of the study is organised as follows. The second section briefly reviews the literature on the transaction cost economics and its implications on contracts, while section 3 gives an overview on the Hungarian beef sector. The survey design and the variables are described in the section 4. The results are presented in section 5. The last section summarises and offers some conclusions on the implications for the market mechanisms of Hungary’s beef sector.

**Transaction costs theory and contracts**

Transaction costs economics (TCE) claims that firm’s vertical boundaries decisions are determined by characteristics associated with efficiency of the chosen form of organisation. It is assumed that efficiency is inversely related to the extent of the costs of organising the exchange. These include the costs of negotiating and written contracts and the costs of monitoring and enforcing contractual performance (Williamson, 1985). The theory focuses on identifying the characteristics of transactions that are best suited to market and firm organisation. TCE asserts that all contracts are incomplete and subject to renegotiations and the possibility of opportunistic behaviour due to the presence of bounded rationality of agents, the asymmetric information and inability to completely specify behaviour in the existence of multiply contingencies. Thus, the problem of opportunistic behaviour is more severe when an exchange requires one or both parties to make considerable transaction specific investments, since such investments create quasi-rent that may be subject to hold up.

The TCE provides several empirically testable hypotheses on the various aspects of contract including contract decision, duration and contract design (Lyons 1996; Masten and Saussier 2000). The vertical integration, or make-or-buy, decision has been the most extensively studied question in the empirical transaction cost literature (Shelanski and Klein 1995; and Crocker and Masten 1996). The structure of contractual agreements may vary with, the objectives of the contracting parties, underlying production relations, and the nature and size of informational and strategic impediments to contract formation and enforcement. As a consequence, theory provides no unifying structure for the specification and testing of contract design hypotheses (Masten and Saussier,2000). Joskow’s study provided evidence that contract duration varies with the benefits of contracting (Joskow, 1987), whilst Fraser (2005) presents an empirical analysis of specific aspects of wine grape supply contracts design and implementation. Frank and Henderson (1992) claim that transaction costs are the determinants of vertical coordination in the food industry, and according to Bash and Davies (1998) state that foreign direct investments are influencing factors in agribusiness contract choice.

In this paper we focus on the following specific hypotheses. First, the likelihood of the long-term contractual agreements increases with the value of relationship-specific investments. Second, contractual relationship will be less formal and there will be less reliance on legal
enforcement, the greater is the expectation that trade will continue into the future. Third, the existence of contract will increase with the frequency with which exchange takes place and the extent to which the transaction needs specific investments. Finally, the size of firms will be positively associated with the propensity to write formal contracts Lyons (1994). Large firms can more easily shoulder the costs of writing a formal contract, because they can spread the overheads of retaining legal specialist.

The Hungarian Beef Sector

In the past decades in Hungary a great concentration of livestock took place. In the European Union smaller farm sizes are traditional. At present in Hungary only 17.7 percent of farms keep less than a hundred animals, while the greater part of the livestock is raised at farms with 300 animals or more.

The Hungarian beef sector can be characterised by the atomized production structure because of the lack of cooperation between the players on the same level in the supply chain. This greatly contributes to the insufficient bargaining power/trading position, to the weak ability to enforce interest (high negotiation costs). These weaknesses are exploited by dominant market players in the sector (multinational trading chains) resulting asymmetric market force. The access to market information is rather limited partly because of the available communication structure and isolation (high information costs), partly because of the difficulty in accessing the published information. Thus contracting with new partners for the long run or choosing the given distribution/purchasing channel depends on factors such as personal relations, reliability, habits. The differentiation of the majority of the produce is on a low level and this fact also adds to further vulnerability. This is also true for beef, which means that suppliers are easily replaced or substituted.

There are only a few contractual relations in this sector. In most of those few cases where there are contractual relations (e.g. purchasing contracts between manufacturers and producers) the contracts have a cross-contractual feature. The beef cattle sector belongs to the controlled regulatory supply chain; the aim of the introduced regulations is to protect the producers’ market position, to ensure a fair income and to provide protection against the high market risk. The introduction of these regulations strengthens the (bureaucratic) vertical coordination, which in most of the cases has an impact on the horizontal coordination (cooperation within the same level). To satisfy market expectations means hardness only for those who cooperate at the same level of the supply chain, therefore the vertical coordination also provides opportunities to improve competitiveness (e.g. the opportunity to act together in a more efficient way).

The Hungarian beef cattle sector belongs to the controlled regulatory sectors, thus the means and solutions of bureaucratic/state coordination can be observed. Market regulation affects only 1/3 of slaughter cattle production. Only 15 – 15% of all of the purchased slaughter beef belong two the I. and II. category groups and that is why the number of those producers who are not entitled to direct producer aids after the EU accession is rather high. We summarise the problems of this sector (primarily contractual) in the following points:
• the lack of definition of mutually advantageous contract conditions
• the lack of contract guarantee applications (both for producer and buyer)
• risks (the risks of sales failures, variation in quality, payment postponement/delay, hindrance in delivery)
• the role of institutions that can force contracts is hardly known if at all (courts, chambers, information on other institutions providing interest representation, so producers should know their rights and obligations)

In the following we give a list of the causes for coordination problems and high transaction costs. These are the current findings based on data processing and surveys:

• incomplete information in the market and the difficulty to access information
• only 50% of the trade is in the contractual forms, thus sales uncertainty is rather significant
• the lack of reliable price estimations and the lack of forecasts
• the lack of long term obligations and of stable, coordination relations
• the difficulty in the contract observance (market discipline)
• the non-observance of standard requirements
• threats due to EU accession (regulations, only a few producers can get subsidies, etc.)
• the possibility of enforcing contract compliance.

Data and Variables

Data have been collected about the choice of retailers and wholesalers between various marketing channels in the beef sector of the central region of Hungary during the period of 2002-2003 using a survey technique. Due to financial constraints we used postal surveys. After 200 interviewees the size of the sample to be evaluated is 60, which can be regarded as acceptable willingness to respond (30%). It is important to emphasize here that the sample was not random. In the survey there is a combination of the most representative traders of the given area and the procedure of random sampling.

Dependent variables. The majority of respondents claim that they have formal contract. Thus the main distinguishing characteristic between different arrangements is the duration of contract. The dependent variable in our model is DURATION, where DURATION=1 if the length of contract is more than one year, and zero otherwise. We also examine one specific aspect of contract: bonus/penalty payment. The PRICEINC takes value one, if firms apply bonus or penalty payment as a safeguard of quality, and zero otherwise.

Asset Specificity. The physical asset specificity in beef production is captured by two variables: 1) investment in production in last business year (INVPAST); 2) specificity of investment (INVSPEC). Human asset specificity measure as: 1) age of retailers (AGE), and 2) retailers’ final level of education (EDUC).

Frequency. We classify the frequency of transactions into following groups: FREQ=1 if daily transactions exist; FREQ=2 if transactions occur every 2-3 days; FREQ=3 in the presence of weekly transaction; FREQ=4 if the frequency of transactions is more than one week.
The size of firm. The size of operation is measured by the number of employees (SIZE).

Reputation. It is difficult task to quantify reputation in a postal questionnaire; we used two proxies for measuring reputation. We asked about the reason of purchasing beef from a particular producer. The respondents evaluate the importance of specific factors including trust (TRUST) and personal contact (PCONT) at the Likert-scale.

Results

Given nature of data collected and the various relationships to be examined we estimate several probit models. All models and specification tests are estimated using STATA. We begin by presenting results that investigate the duration. From the data we know that 85 per cent of retailers have long-term contract. We used different specifications to test the sensitivity of our results on a particular choice of physical (INVPAST/INVPEC) and human asset specificity (AGE/EDUC) and reputation (TRUST/PCONT) variables.

Contract Duration

Estimated coefficients of probit models of contract duration are presented in Table 1. The results are quite similar for each specification. The estimations indicate that asset specificity variables have expected sign, but none of them are significant for all specifications. The reputation variables have also expected signs, but they are significant for PCONT with INVPAST variables. It indicates that the growing reputation leads to short-term contract. The FREQ variables are significant for six specifications with expected signs. This suggests that the frequency of transactions has negative effect on the duration of contracts. Finally, the coefficients of SIZE are significant with expected signs for all specifications.
We examine one specific aspect of contract content: the presence of bonus/penalty payments. Goodhue et al. (2004) and Fraser (2005) employ contract duration as an independent variable. Although they acknowledge the endogeneity problem of this variable within estimations, they argue that the decision regarding contract duration are made before contract content. We estimated our models with and without contract duration variables. The calculations show that DURATION variables have negative signs without significance. Comparing two types models the Bayesian information criteria support models without duration variables. Furthermore, specifications with TRUST variable report that some observations predicted perfectly, therefore ML estimation is not possible because the dependent variables does not vary within one of the categories of an independent variables. Consequently, we present our results with PCONT specifications (Table 2). The physical asset specificity variables have negative signs and they are significant for INVPAST variables. This indicates that investing in relationspecific assets is less likely induces the application of price incentives. We find that age is positively, while the level of education is negatively related to bonus/penalty payments, but they are not significant except AGE with INVSPEC model. The reputation variables (PCONT) are not significant with positive signs. The frequency of transactions (FREQ) is positively related to contract content, but they are not significant. The coefficients of SIZE are significant with negative signs for all specifications. This suggests that smaller retailers are more likely use price incentives than larger firms. It can be explained by the stronger bargaining power of larger retailers.

<table>
<thead>
<tr>
<th>Explanatory variables</th>
<th>Dependent variables: DURATION</th>
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<tr>
<td>Invpast</td>
<td>0.199 0.318 0.074 0.223</td>
</tr>
<tr>
<td>Invspec</td>
<td></td>
</tr>
<tr>
<td>Age</td>
<td>0.419 0.272</td>
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<tr>
<td>Educ</td>
<td>0.125 0.105</td>
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<tr>
<td>Trust</td>
<td>-0.399 -0.372</td>
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<tr>
<td>Pcont</td>
<td>-0.794* -0.816*</td>
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<tr>
<td>Freq</td>
<td>-0.760* -0.862** -0.689</td>
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<tr>
<td>Size</td>
<td>1.416** 1.350*** 1.385***</td>
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<tr>
<td>Constant</td>
<td>-6.516 -6.441** -5.15*</td>
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<tr>
<td>Mcfadden's R²</td>
<td>0.308 0.335 0.304 0.334</td>
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<tr>
<td>Loglikelihood</td>
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<td>N</td>
<td>60 60 60 60</td>
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</table>

legend: * p<0.1; ** p<0.05; *** p<0.01

Table 1. Probit models: contract duration
In this paper we have analysed contractual arrangements between retailers and beef producers in Hungary employing transaction cost economics framework. The results presented add to a small but growing literature on contract design and implementation in transition agriculture. We found that retailers use rather long-term contracts with beef producers. The most striking result is that the frequency of transactions has negative influences on the duration of contract. Furthermore, large retailers are unlikely to have long term contract. Surprisingly, asset specificity has no significant effects on the duration of contract. We found some evidence that reputation reduces the probability of long term contract. In terms of specific aspect of contracts we find that price incentives in the form of bonus/penalty payments clauses are more likely to be incorporated in a contract of small firms. At the same time investing in physical asset specificity leads less use of price incentives. Sensitivity analyses show that our results are fairly robust to alternative specifications.

References


