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Key Factors Influencing Economic Relationships and Communication in Finnish Food Chains

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Reports 49



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Foreword

This report is a part of key the deliverable report of EU funded research project “*Key Factors Influencing Economic Relationships and Communication in European Food Chains*” (FOODCOMM). The aim of the FOODCOMM project was to examine the role (prevalence, necessity and significance) of economic relationships in selected European food chains and to identify the economic, social and cultural factors which influence co-ordination within these chains.

The research project considered meat and cereal commodities in six different EU countries (Germany, UK/Scotland, Ireland, Finland, Spain, Poland) and was commissioned against a background of changing European food markets. The research project consisted of seven work packages. This report presents the results of research conducted for work packages 3 and 4 (WP3 and WP4).

Based on the systematic review of the literature and qualitative interviews with key representatives from EU farming, food processing and retailing sectors, several hypotheses were developed with regard to:

- the factors that determine the choice of a certain relationship type (i.e., formal versus non-formal interactions)
- the determinants which may potentially have an impact on the goodness of buyer-supplier relationships.

The quantitative analysis described in this report is based on the data generated by a survey conducted in the pig meat and rye chains in Finland. Using logistic regression analysis and structural equation modeling, the empirical relevance of the determinants of relationship types (formal or informal) and relationship goodness were tested.

Ruralia Institute wishes to thank all the individuals and companies that kindly gave up their time to take part in the study. Their input has been invaluable to the project. FOODCOMM project was co-ordinated by the University of Bonn, Department of Agricultural and Food Market Research. Special thanks to Professor Monika Hartmann for acting as the project leader of FOODCOMM.

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Executive summary

The aim of this report is to discuss the role of the relationship type and communication in two Finnish food chains, namely the pig meat-to-sausage (pig meat chain) and the cereal-to-rye bread (rye chain) chains. Furthermore, the objective is to examine those factors influencing the choice of a relationship type and the sustainability of a business relationship. Altogether 1808 questionnaires were sent to producers, processors and retailers operating in these two chains of which 224 usable questionnaires were returned (the response rate being 12.4%). The great majority of the respondents (98.7%) were small businesses employing less than 50 people. Almost 70 per cent of the respondents were farmers.

In both chains, formal contracts were stated to be the most important relationship type used with business partners. Although for many businesses written contracts are a common business practice, the essential role of the contracts was the security they provide regarding the demand/supply and quality issues. Relative to the choice of the relationship types, the main difference between the two chains emerged especially with the prevalence of spot markets and financial participation arrangements. The usage of spot markets was significantly more common in the rye chain when compared to the pig meat chain, while, on the other hand, financial participation arrangements were much more common among the businesses in the pig meat chain than in the rye chain. Furthermore, the analysis showed that most of the businesses in the pig meat chain claimed not to be free to choose the relationship type they use. Especially membership in a co-operative and practices of a business partner were mentioned as the reasons limiting this freedom of choice.

The main business relations in both chains were described as having a long-term orientation and being based on formal written contracts. Typical for the main business relationships was also that they are not based on the existence of the key persons only; the relationship would remain even if the key people left the business. The quality of these relationships was satisfactory in both chains and across all the stakeholder groups, though the downstream processors and the retailers had a slightly more positive view on their main business partners than the farmers and the upstream processors. The businesses operating in the pig meat chain seemed also to be more dependent on their main business relations when compared to the businesses in the rye chain.

Although the communication means were rather similar in both chains (the phone being the most important), there was some variation between the chains concerning the communication frequency necessary to maintain the relationship with the main business partner. In short, the businesses in the pig meat chain seemed to appreciate more frequent communication with their main business partners when compared to the businesses in the rye chain. Personal meetings with the main business partners were quite rare in both chains. All the respondent groups were, however, fairly satisfied with the communication frequency and information quality between them and the main business partner.

The business cultures could be argued to be rather hegemonic among the businesses both in the pig meat and rye chains. Avoidance of uncertainty, appreciation of long-term orientation and independence were considered important factors in the business cultures. Furthermore, trust, commitment and satisfaction in business partners were thought to be essential elements of business operations in all the respondent groups.

In order to investigate which factors have an effect on the choice of a relationship type, several hypotheses were tested by using binary and multinomial logit analyses. According to these analyses it could be argued that avoidance of uncertainty and risk has a certain effect on the relationship type chosen,

i.e. the willingness to avoid uncertainty increases the probability to choose stable relationships, like repeated market transactions and formal written contracts, but not necessary those, which require high financial commitment (like financial participation arrangements). The probability of engaging in financial participation arrangements seemed to increase with long-term orientation. The hypotheses concerning the sustainability of the economic relations were tested by using structural equation model (SEM). In the model, five variables were found to have a positive and statistically significant impact on the sustainable economic relationship construct. Ordered relative to their importance, those factors are: (i) communication quality, (ii) personal bonds, (iii) equal power distribution, (iv) local embeddedness and (v) competition.

1. Introduction

(Christian Fischer, Miroslava Bavorova)

Agricultural markets have been substantially liberalised over the past decade, especially in OECD countries (Anton & Jones 2002). Not least, the Common Agricultural Policy (CAP) of the EU is moving towards freer markets by step-wise reduction of market intervention measures. Furthermore, the globalisation of the agri-food system is widely expected to continue, notably induced by the upcoming World Trade Organisation (WTO) commitments. As a result, the European food system has been rapidly developing towards an internationally interconnected system with a large variety of complex relationships, mainly due to the demand for year-round supply, large product assortments and rapid progress in information and communication technologies (Commins 2001; Overboom 2000).

Given these developments, farmers, processors and distributors in the EU will have to perform in a different economic and political environment. In the worst case, if food chain stakeholders are not sufficiently prepared to cope with the changing policy environment, the efficiency, competitiveness and sustainability of the European food system could be seriously affected. Since primary production and considerable parts of processing are located in rural areas, severe consequences for the prosperity of these areas can additionally be expected. Yet, globalisation and liberalisation for agricultural products can also imply an opportunity for the European food system catalysing the development towards a progressive, competitive and socially-respected economic sector.

During the last years it has been widely acknowledged that the pro-active management of inter-organisational relations has become a crucial source of competitive advantage (Dyer & Singh 1998). As a result, and in order to achieve a higher level of value creation and supply reliability, there is now an increased need for more co-ordination between food chain actors implying a move away from traditional adversarial relationships between chain partners towards co-operative arrangements in which all try to improve the flow of products and information in the food chain. In the past, the majority of vertical interactions of economic actors have been based on discrete arm's-length transactions¹. However, now a trend towards continuous relational transactions can be observed. Claro et al. (2004) believe there is empirical and theoretical evidence that show that non-arm's-length relationships are capable of generating relational rents to partners of a relationship². Furthermore, increased competition has stressed the importance of both new product and process innovations (including chain concepts) and these are clearly supported by knowledge transfer among value chain actors (e.g. Mitra 2000). Public pressure for transparency, traceability and due diligence throughout the food supply chain has also played a role (Fearne et al. 2001). These developments influence the way in which inter-firm relations in agribusiness supply chains are managed and organised. Strategies ranging from complete vertical integration to collaborative alliances have been developed in an attempt to establish a more competitive position for those involved. In addition, they offer the alternative of evolving into a value chain that is removed from the free market extreme of 'open commodity trading' which has been a feature of agricultural markets for so long (Palmer 1996).

Communication is an essential step for the creation of trust along value chains and thus for the management of sustainable economic relations (Bruhn 1999; Greenber & Grahm 2000; Chartier & Gabler 2001). Seen as the 'interactive process of information and knowledge exchange', there is now an increased demand in society to move from the traditional one-way to a two-way communication within food

¹ An arm's length transaction is commonly defined as "a transaction between two related or affiliated parties that is conducted as if they were unrelated, so that there is no question of a conflict of interest. Or sometimes, a transaction between two otherwise unrelated or affiliated parties".

² Relational rents are defined as "profits jointly generated in an exchange relationship that cannot be generated by either companies in isolation and can only be created through the joint idiosyncratic contributions of the specific alliance partners" (Dyer & Singh 1998, cited in Claro et al. 2004).

chains, which implies giving chain-end users a real possibility to be heard. As a consequence, functional producer-consumer feed-back systems need to be developed. Another demand on current food communication directed towards consumers refers to multidimensional communication, meaning that a whole set of issues with regard to food quality and safety need to be communicated simultaneously (Chartier & Gabler 2001). While research in the US pork industry (Miller 2001) identified a clear cost in none or insufficient communication, no research has been conducted to identify these costs in the context of EU food chains involving CAP commodities.

Similar to economic relationships, it is recognised that the benefits of increased co-ordination and communication may not be equal along the chain. For example, the relative size of companies in the chain and/or the ability to manage the chain (i.e., to serve as the "chain captain") influences the rewards received from closer collaboration (Cooper & Ellram 1993). While some research has been conducted in this arena, e.g. Katz & Boland (2000) examined the role of quality-based pricing structures on supply chain relationships and the share of risks and rewards in the context of the US beef industry), no comprehensive study has been conducted at an EU level to determine the best method of dispersing rewards and risks along the food chains involving CAP commodities in this way.

As a consequence, pan-European research is needed in order to generate a more comprehensive understanding of the role (prevalence, necessity and significance) of economic relationships and communication in European food chains and to identify the economic, social and cultural factors which influence co-ordination within these chains. Furthermore, possibilities need to be found to overcome existing obstacles.

As a result, the overall objective of the FOODCOMM project was to analyse the role (prevalence, necessity and significance) of economic relationships and communication in selected European food chains and to identify and analyse the social, economic and cultural factors influencing communication and economic relationships between producers, processors and retailers, necessary for the long-term stability of food chains in the framework of a CAP with decreasing recourse to market intervention measures. In line with this overall objective, this report aims to describe the role of the relationship type and communication in two Finnish food chains, namely the pig meat-to-sausage and the cereal-to-rye bread chains. Furthermore, the objective of this study is to examine those factors influencing the choice of a relationship type and the sustainability of a business relationship.

2. Conceptualisation and development of hypotheses (Monika Hartmann, Christian Fischer, Nikolai Reynolds)

The theoretical framework of work package 1 (WP1) provides a basis for differentiating determinants influencing communication and the sustainability of economic relationships into factors influencing whole chains (i.e. food sector characteristics) and factors influencing dyadic relationships. Figure 1 exhibits how economic relationships and communication are related to the food sector and how the food sector is embedded in the macro-environment.

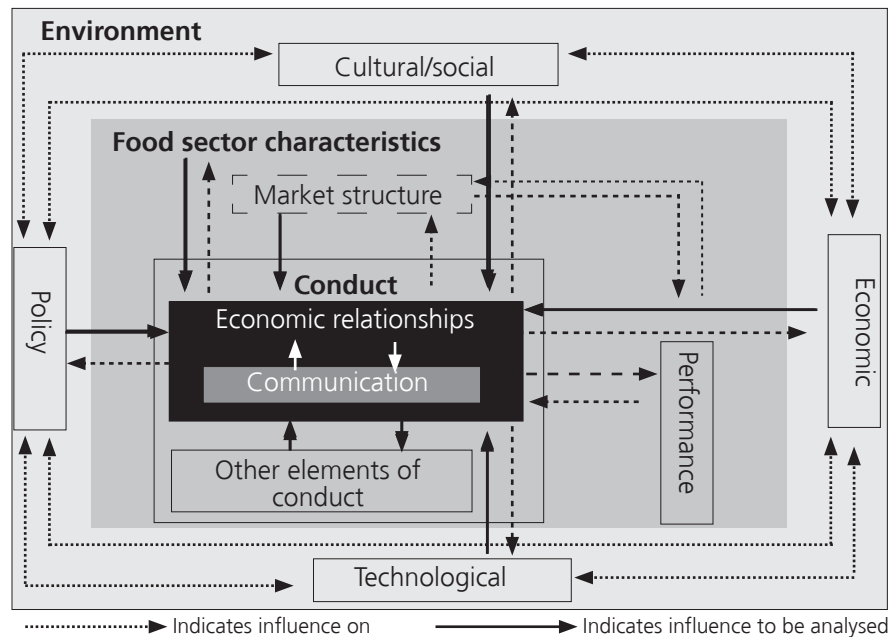


Figure 1. Determinants of economic relationships and communication in the European agri-food system
Source: FOODCOMM 2006a, 76.

Macro-environmental determinants may be summarised into four categories: (i) cultural/social, (ii) technological, (iii) political and (iv) economic factors (Figure 1). While these macro-environmental factors do not interact directly with economic relationships and communication in agri-food chains, they have an influence by affecting food sector-specific regulations, technological standards, etc. (FOODCOMM 2006a, 75). In the statistical estimations, these determinants are not, however, individually accounted for due to the non-availability of appropriate data.

Sector-specific characteristics directly impact on agri-food chains. Expert interviews in work package 2 (WP2) have helped to identify such determinants, e.g., competition, consumer behaviour, changes in the Common Agricultural Policy (CAP) and traceability/quality assurance requirements.

Besides factors influencing the whole agri-food chains, WP1 also distinguishes factors interacting directly with single dyadic relationships (FOODCOMM 2006a, 76). These dyadic relationship factors influence the relationship and communication between two actors that are planning to do business with each other or already do it. These factors comprise characteristics of the interacting businesses (risk aversion, strive for independency, degree of local embeddedness, etc.) but also how the two businesses perceive each other (e.g. equal power distribution) or the experience they have (e.g. collaboration history).

The theoretical framework WP1 formed a basis for the WP2 report, and has helped to identify and illustrate in a country review how these factors influence the choice of relationship type and the nature of economic relationships and communication and provided a basis for developing hypotheses in this report. Hypotheses are given in the following two sub-sections.

2.1 Determinants of the choice of relationship types

Governance structure findings in WP1 and WP2 reveal that no single type of relationship is superior in all circumstances. The optimal design of relationships and communication differs according to the dyadic relationship conditions, food sector and macro-environmental factors.

Depending on these factors, different relationship types may be chosen. Based on the conceptual framework on relationship types in WP1 (FOODCOMM 2006a, 77) four relationship types were differentiated for the survey:

- Spot markets (immediate exchange of goods or services at current prices. The identities of the business partners are largely irrelevant, e.g. auctions)
- Repeated market transactions (repeated exchange of goods or services at current prices with the same supplier. The identities of the business partners are of relevance.)
- Formal (written) bilateral contracts (legally enforceable contract which defines all or part of each party's obligations; can be short- or long-term)
- Financial participation (shared ownership of production, processing or distribution assets between parties, but parties remain legally independent, e.g. joint ventures, franchise)

The above categories of governance structures (i.e. relationship types) were slightly modified for the survey in the work package three (WP3). Figure 2 illustrates food sector and dyadic relationship factors influencing the choice of relationship types and provides the basis for developing the hypotheses.

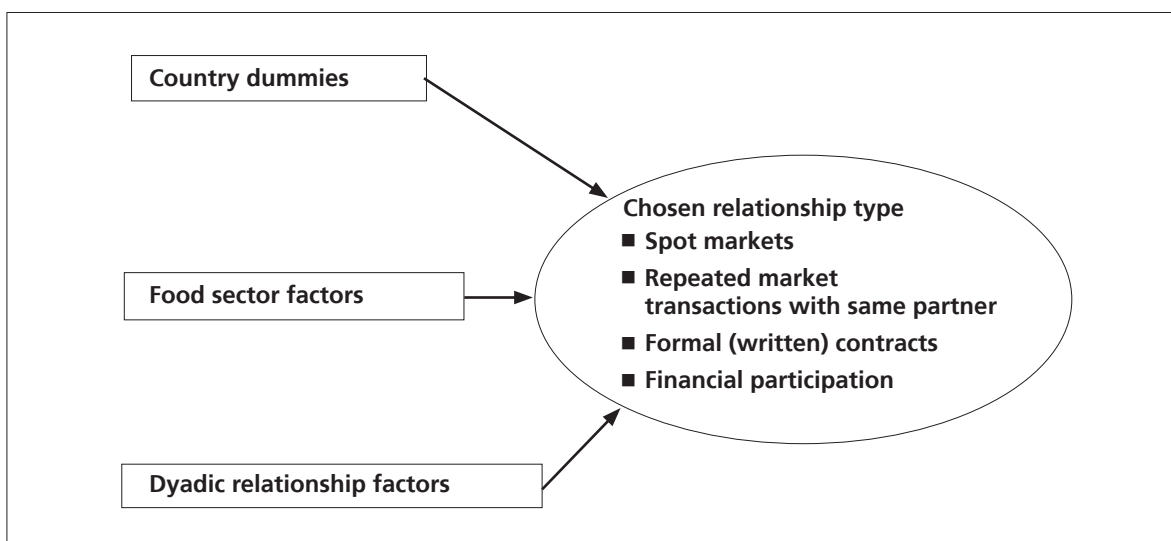


Figure 2. Conduct: determinants of economic relationships types

2.1.1 Food sector factors

Quality orientation and traceability/food safety assurance requirements

Driving forces for agri-food businesses to produce goods with a specific quality level often originates from consumers demanding quality, and traceability assurance systems necessitating specific quality levels in terms of food safety. On agri-food markets where consumers are calling for product quality, businesses must create a reputation of high quality which may require long-term investments in product development and creating contracts with suppliers to guarantee resources with a specific quality level (FOODCOMM 2006a, 6, 8). For instance, one reason for German and Spanish retailers in the sausage chain to collaborate more closely with sausage producers is to assure a specific quality level. Also, besides consumers demanding quality, public and private traceability assurance systems have an impact on the choice of relationships. Ranyaud et al. (2002) review quality enforcement measures in the agri-food sector and their influence on the typology of economic relationships. They summarise that quality labels and enforcements lead to closer, long-term relationships. Similarly, expert interviews also revealed that traceability enforcements lead to more formalised and standardised relationships (FOODCOMM 2006b, 293).

- H1.1** In quality-oriented markets, agribusinesses are more likely to use formal (written) contracts and financial participation arrangements rather than spot markets or repeated market transactions.
- H1.2** Traceability and food safety assurance requirements raise the information and monitoring cost of occasional supply, favouring formal written contracts and financial participation arrangements.

Competition in seller markets

Non-arm's-length relationships, e.g., long-term contracts or financial participation, are capable of generating relational rents for chain partners. This is driven by private incentives to secure market growth, gain market share, improve margins and increase efficiency in an environment characterised by greater competitive pressures due to increased global competition (FOODCOMM 2006a, 78). Intensified vertical collaboration is recorded amongst multiple agri-food chains across most European countries. Reasons for this process in this group are price competition making economies of scale and scope more important (FOODCOMM 2006b, 279).

- H2** The higher the degree of competition in the market in which an agri-food chain sells, the more likely agribusinesses are to use formal written contracts or financial participation arrangements rather than spot markets or repeated market transactions.

2.1.2 Dyadic relationship factors

Independency

Independent minded entrepreneurs prefer to conduct business in spot market environments or through repeated market transactions.

- H3** The higher the general desire for the economic independence of an agribusiness' management, the more likely agribusinesses are to use spot markets or repeated market transactions rather than formal written contracts or financial participation arrangements.

Risk aversion

The degree to which a business tolerates risk depends on its business culture. To reduce risk, businesses may harmonise interests by writing incentive-compatible contracts or by conducting business with well-known partners (FOODCOMM 2006a, 10). This leads to the general assumption that businesses which feature high risk aversion may tend to use more stable relationship types but not particularly those which require high financial commitments.

- H4** The higher the degree of risk aversion, the more likely agri-food businesses are to use repeated market transactions or formal written contracts rather than spot markets or financial participation.

Long-term orientation

Long-term orientation implies a higher degree of commitment and an expectation of future rewards for present investments. Agri-food businesses in formalised long-term or closer economic relations, look back at a positive chain history (FOODCOMM 2006a, 44).

- H5** The higher the degree of long-term orientation, the more likely agribusinesses are to choose repeated market transactions, formal contracts or conduct financial participation arrangements than spot markets.

The above hypotheses on factors influencing the choice of economic relationships and their differentiation into food sector factors and dyadic relationship factors are displayed in Figure 3. The underlying hypotheses of this model are tested in Section 5.

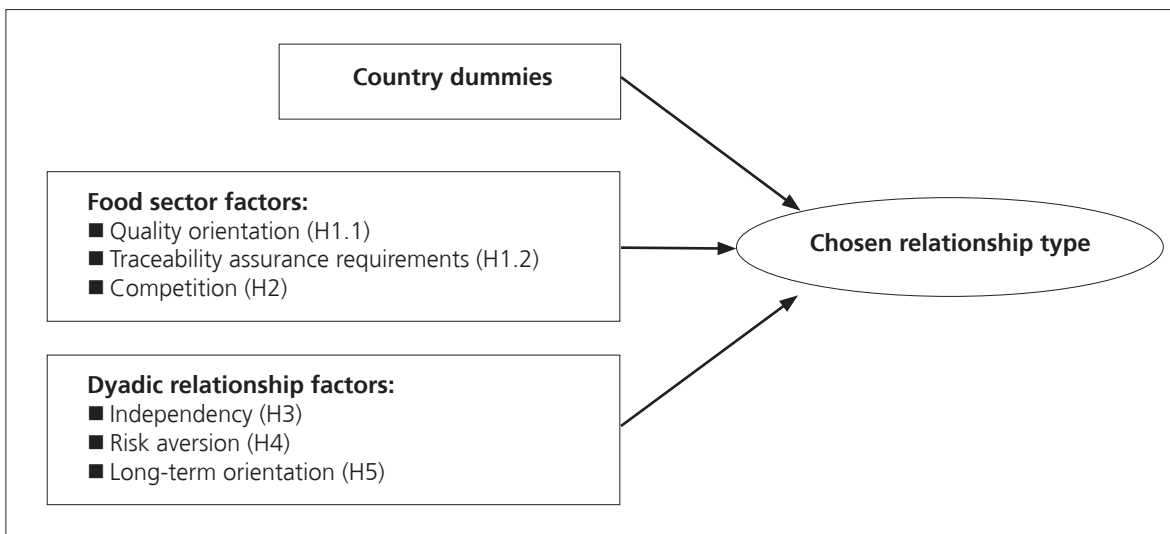


Figure 3. Hypothesised determinants of economic relationships types

2.2 Determinants of the nature of economic relationships and communication

Sustainable economic relationships can be characterised as a two-dimensional construct involving relationship quality and relationship strength (Figure 4). Relationship quality represents the static component while relationship strength covers the dynamic aspects of a relationship. Relationship quality comprises more inter-personal factors, such as trust, commitment or satisfaction with a business partner. Relationship strength considers non-coercive and coercive behaviour and past chain experiences. Relationship strength is indicated by the existence of switching costs, resistance to disruption and a positive collabora-

tion history with a business partner. Relationship quality and strength are interrelated and together form sustainable relationships. Relationship sustainability may also be referred to as 'relationship goodness' where goodness is the meta-term encompassing both current quality aspects, and past development criteria as an indicator for the relative strength of a relationship.

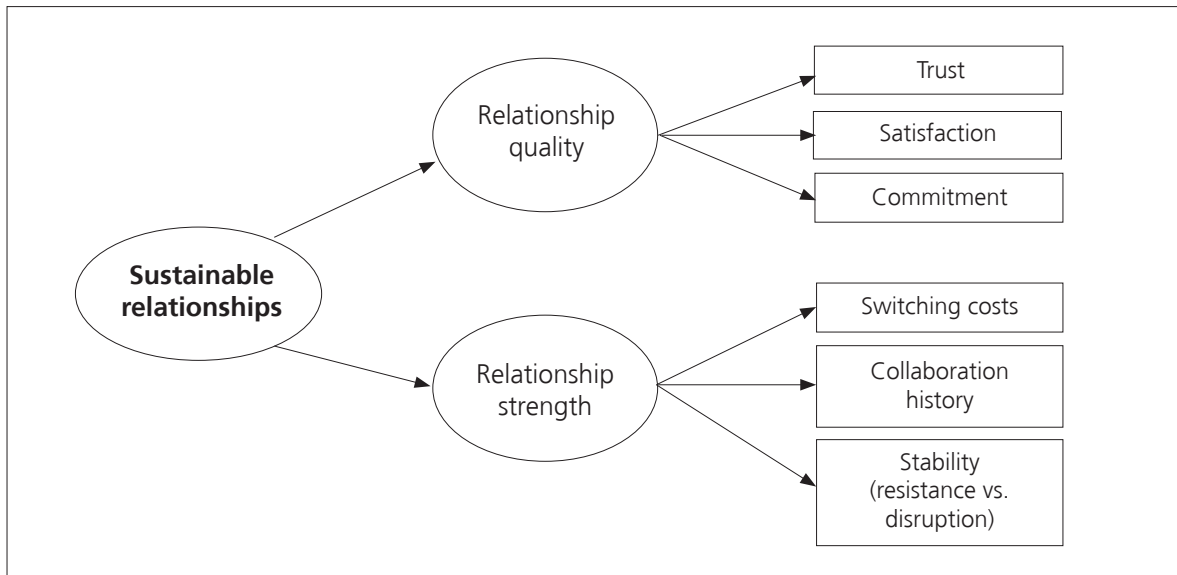


Figure 4. Conduct: sustainable economic relationships defined

2.2.1 Dyadic relationship factors

Communication

Communication between chain actors is an important interaction by which formal or informal information is shared (FOODCOMM 2006a, 47). Communication is a basis for beneficial relationship outcomes and helps to create sustainable economic relationships and contributes to their stability and development (FOODCOMM 2006a, 72).

H6 Communication positively affects the sustainability (i.e. quality and strength) of economic relationships.

Relationship type

The choice of the relationship type sets the basis for developing a sustainable relationship. Businesses which choose spot market relationships have no direct intention to build a sustainable relationship. Independent of who the business partner is, the business seeks the immediate exchange of goods or services at current prices. Immediate exchange is not always possible. Uncertain time gaps between delivery and payment can be backed up legally by using formal written contracts. While these contracts may run long-term, they do not necessarily imply sustainability. Repeated market transactions postulate a higher degree of trust in the relationship and a positive collaboration history as the businesses chooses to continue their business relationship without using formal written contracts. Also, financial participation arrangements imply a high degree of commitment inducing collaborative investments. Both relationships imply a good basis for developing a sustainable relationship.

H7 Economic relationships which are based on repeated market transactions and financial participation arrangements are more sustainable than spot market relationships or relationships built on contracts.

Embeddedness

The degree of embeddedness of a business in its local environment may support the development of sustainable relationships between this business and other local businesses (FOODCOMM 2006a, 46).

H8 The higher the degree of embeddedness in the local economy in which an agribusiness and its partner operates, the higher the sustainability (i.e. quality and strength) of economic relationships.

Personal bonds

The importance of personal bonds and ties for the sustainability of economic relationships is depicted in the theoretical framework of WP1. Relationships without personal ties tend to have short-term oriented transactions (FOODCOMM 2006a, 32, 40, 68).

H9 The existence of personal bonds positively affects the sustainability (i.e. quality and strength) of economic relationships.

Equal power distribution

Power distribution plays a significant role for the nature of economic relationships. Power distribution in economic relationships is determined by many factors, such as relative market share, information asymmetry (FOODCOMM 2006a, 41). Chain relationships with unequal power distribution tend to be less stable and sustainable.

H10 Equal power distribution between business partners positively affects the sustainability of economic relationships.

Key people

Key people are individuals in a business who possess a specific level of knowledge about and responsibility for their own business and the relationship with the important business partner(s). Replacing such individuals who manage the relationship "in one voice" may be difficult to do, the longer the key people have worked and the more they were responsible for the relationship(s) (Pardo 1999).

H11 The more the relationship depends on the key people, the more negatively the sustainability of the economic relationships (i.e. quality and strength) is affected when the key people leave the business.

2.2.2 Food sector factor

Competition seller markets

Competition has intensified across Europe due to agri-food businesses operating within a global market and as a part of the enlarged EU (FOODCOMM 2006a, 78). This puts economic relationships under pressure, causing a clash between the businesses which are anxious to retain their tight margins. To maintain market shares, chain participants are challenged to collaborate more closely with their partners.

H12 The higher the degree of competition in the market in which an agribusiness operates, the lower the sustainability (i.e. quality and strength) of economic relationships.

Figure 5 merges the above hypotheses with the model construct displayed in Figure 4. This construct will be tested using a structural equation model (SEM) in Section 5.

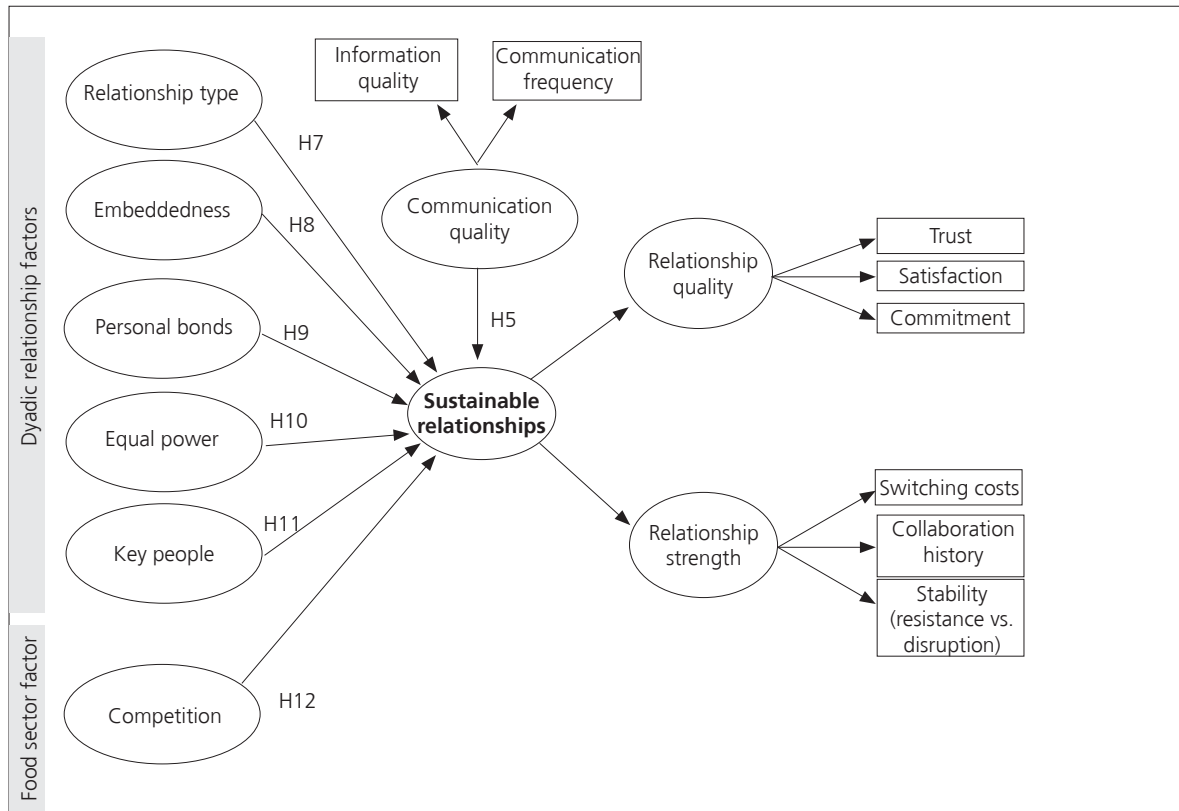


Figure 5. Hypothesised factors influencing sustainable economic relationships

3. Research design

(Hannele Suvanto, Pauli Valkosalo, Sami Kurki)

3.1 Sampling frame

The Finnish target population was national due to the relatively small number of actors involved in both chains studied. However, given the geographical pattern of rye and pig meat production and processing, it was likely the samples to be concentrated in the western and southern Finland. The technical annex of the FOODCOMM project specifies that the target populations for the rye-to-bread and pig meat-to-sausage chains are divided into three main types of actors: farmers, processors and retailers/distributors. The following sub-sections will present more in detail these target populations.

3.1.1 Rye producers

Barley and oats are the most common cereals in Finland, whereas rye is a marginal species when cultivated land areas are considered and it is rarely the main production crop in a farm. However, the cultivated rye is used only for bread because of the important socio-cultural meanings of rye: rye bread has always been the stone base of the Finnish diet and Finns consider rye bread as one of the most important domestic food products. Therefore the consumption of rye bread has remained high or even increased although the amount of rye production has decreased significantly during the last decades. Because of high rye bread consumption, imported rye has a significant role in the food business (Niemi & Ahlstedt 2005; Tulli 2005; Lehtonen & Pyykkönen 2005).

In 2004, rye was produced in a total area of 31,000 ha, of which 7,000 ha organically. Instead in 2005, there were only 14,350 ha because of bad weather in the autumn 2004. In Finland rye is sowed mainly in the autumn and the crops are harvested next autumn. The other crops are mainly sowed in the spring and harvested in the autumn. The low price of rye has decreased rye farming although the price increased during the years 2005 and 2006. Over 8,000 farms grew rye on 44,600 ha in 2000. Instead in 2005 only 2,400 farms grew winter- and spring rye on 14,350 ha. In 2006, the amount was over 21,000 ha. Although the rye area harvested and yields can vary significantly in different years, the average rye area harvested by a farm is around 5.5 to 6.0 hectares. Rye and other corns are predominately produced in the western and southern Finland and eastern Finland has traditions in organic production. Rye is mostly cultivated in the regions of Uusimaa, Varsinais-Suomi, Häme, Pirkanmaa and Satakunta which are all located in the southern and western Finland. These regions are also the most productive areas (TIKE 2003, 2006a; Niemi & Ahlstedt 2006). The cereal production has followed the common structure changes of agriculture in Finland: many eastern and northern farms have changed their production line from animal farming to corns (barley and oats) farming or they have totally abandoned farming (Lehtonen & Pyykkönen 2005).

3.1.2 Rye processors

Processors in the Finnish rye-to-bread chain can be divided into corn traders, malt processors, mill product³ producers, wholesalers and bakeries. Cereal, seed and feed traders, mill product producers and malt producers are considered as primary processors. Bakeries and wholesalers are considered as secondary processors. The following text will present in detail the Finnish rye processors. The official figures

³ Besides flours, mill products include also crushed grain, groats, bran and other corn products.

presented include all cereal-to-bread chain actors in Finland. However, many of these do not operate with rye, which is a marginal raw material especially in the mill and malt business. The actors who do not operate with rye were eliminated from the sample before contacting and marketing the survey.

There are 100 corn, seed or feed traders operating in Finland. The biggest corn traders, such as Hankkija-Maatalous Oy (S Group), Maatalouskesko Oy (K Group) and Lännen Tehtaat Oy/ Avena Nordic Grain have from 80 to 90 per cent share of the national market. The other actors are mainly small and operate locally. Among four malt processors, Laihia Mallas Oy is the leading rye malt producer. Likewise a few dominant actors have a majority of the mill product markets. There are about 100 mill product producers in Finland (Tilastokeskus 2006b, 2005). The most important mills are Ravintoraisio Oy/ Melia Oy, Karl Fazer Oy/ Fazer Mylly, Helsingin Mylly Oy and Myllyn Paras Oy, which have, according to Leipätiedotus ry (2006), 95 per cent share of corns sold. These large mills also process rye. Instead the other 90 mill product producers, which are mainly small, do not necessarily mill rye. The small mills have relatively small but important input in the mill product business, especially in special products such as groats and bran.

Labour intensity, the proliferation of establishments, the small size of the most companies and the high industry concentration are characteristic of the Finnish bakery industry. There are sixteen bakery wholesalers which operate mainly with processors but their economic role is rather insignificant and thus they are excluded from this survey. In addition to the wholesalers there are approximately 900 bakeries operating in Finland. Nearly all the bakeries are locally operating micro-sized companies (under ten employees). The micro and small-sized bakeries employ 48 per cent whereas a few nation-wide bakeries employ 37 per cent of all employees. The two largest bakeries, Fazer Leipomot Oy and Vaasan & Vaasan Oy, have 3.7 per cent of the establishments, but they hold about 60 per cent of the bread markets whereas medium-sized bakeries hold about 20 to 30 per cent. About 55 per cent of the small and medium-sized bakeries consider the local area, for example province or municipality, as their target market. Medium-sized bakeries may use the whole Finland, provinces or nearby regions as their target market area. A few national and well known brands and rye bread products are sold almost in every retail store throughout the country (Tilastokeskus 2005; Grönroos 2005).

3.1.3 Pig meat producers

Pig meat production is one of the most important agricultural sectors in Finland because of its total gross sales, farm income generation, potential development and importance especially in markets abroad (Finfood 2005; Niemi & Ahlstedt 2005). The sector is going through structural changes. The number of farms specialising in pig husbandry was reduced by 45 per cent from 1995 to 2004 and in the next ten years there might be less than 2,000 pig farms in Finland. In 2005, the number of pig farms (the main production line) was about 2,900, of which approximately 1,600 farms had specialised fattening/ finishing units or integrated units. Three production systems are common in Finland: 1) specialised breeding units, 2) specialised fattening/ finishing units and 3) integrated units (combining breeding and fattening) (Lihakeskusliitto 2005; Finfood 2005; TIKE 2005).

Large pig units are not common in Finland, but their share in the number of farms and especially in the number of animal production is increasing. It is predicted that the size of the Finnish pig farms will increase significantly in the near future. Thus, it is expected that the average number of fattening pigs sold per farm will be 2,500 in 2012, which is 80 per cent more than in 2004. The share of large farms with over 3,000 pigs is expected to triple until 2012 and their market share to increase from 37 to 55

per cent of all fattening pigs. In addition, the large pig farms are often specialised either in breeding or fattening. The most of the pig farms are located in southern and western Finland near the meat processing companies (Lihakeskusliitto 2005; Finfood 2005).

3.1.4 Pig meat processors

Processors in the Finnish pig meat to sausage chain are sub-divided into acquisition and advisor organisations, slaughterhouses, meat and meat product wholesalers and meat processors/sausage producers. The acquisition and advisor organisations, slaughterhouses and meat and meat product wholesalers are considered as primary processors and meat processors, such as sausage producers, as secondary processors. The following text will present more in detail the Finnish sausage chain processors. The official figures presented text include all meat chain actors in Finland. However, many of these do not operate with pig meat and sausage. Those actors were eliminated from the sample before contacting and marketing the survey.

The meat sector has many small enterprises and only a few very large enterprises. According to Tilastokeskus (2005), there are a few acquisition and advisor organisations, 53 slaughterhouses (excluded poultry), 66 meat and meat product wholesalers and approximately 200 meat processors. The meat wholesalers operate mainly between the producers and processors. Thus they are counted as a part of the processor sector.

The meat processing sector, including primary and secondary processors, is very concentrated and vertically integrated in Finland. The meat industry employs 10,200 people, but about 65 per cent of establishments have less than 10 employees and yield only 2.8 per cent of the total turnover of the sector (Elintarvikeyritykset 2005; Välimäki 2005). The 20 largest companies account for over 90 per cent of the sector's gross value. The ten largest companies have over 70 per cent of the meat industry turnover and they employ 75 per cent of the workforce in the industry. The two largest processors have integrated slaughtering and sausage production, they are connected by ownership to the producers and they dominate the sausage markets. The large companies, such as Atria Yhtymä Oyj, HK Ruokatalo Group Oyj, Saarioinen Oy, Järvi-Suomen Portti, Snellmann Oy and Pouttu Oy dominate the Finnish meat markets with strong and well-known brands, especially in the sausage and grill sausage sector. Usually the middlemen of the pig chain, such as acquisition and advisor organisations, are owned by cooperatives, which have 85 per cent market share in the slaughtering (Välimäki 2005).

3.1.5 Distributors/retailers

The tradition of buying meat and bread at supermarkets is very pronounced in Finland compared, for example to France, where independent butchers and bakeries have a large market share. The different shopping patterns are also seen: Finnish consumers do not prefer to spend as much time for shopping as consumers in southern Europe (Nordic Food Markets 2005). The supermarkets offer a wide selection of sausages and rye bread. There are two well known national brands in both product categories. However, Finns prefer also the local bakeries. Rye bread and sausage have similar distribution channels from retail to consumers and the target population of the retail sector is the same. Therefore the distribution/retail stage of both chains is presented in one section.

The Finnish retail sector is very concentrated and the chains account for about 94 per cent of sales and about 79 per cent of the total number of shops (Tables 1 and 2). The share of the two largest chains of the total sale is 80 to 90 per cent. The share of independent retailers, butchers and discounters is significantly small but the share of discounters is growing (Päivittäistavara-kauppa ry. 2006). According to Nordic Food Markets report (2005), the Finnish food markets are small and dispersed compared to the continental Europe. Therefore the retail trade needs large volumes to achieve sufficiently efficient operations in vast and sparsely populated countries. Multiple retail chains manage also the wholesale sector. Kesko Food Ltd, Inex Partners Oy and Tuko Logistics Oy serve inter alia their group stores whereas Kespro Oy, Wihuri Oy Aarnio Metro chain, Meira Nova Oy and Heinon Tukku Ltd are particularly significant for the HoReCa sector (Päivittäistavara-kauppa ry. 2006).

Table 1. *Distribution Structure for Daily Consumer Products*

Chain	Share of sale (%)	Number of shops*	Chain	Share of sale (%)	Number of shops*
K Group	33.9	1,062	Lidl	3.7	95
S Group	35.9	792	Stockmann	1.5	7
Tradeka	10.8	743	Others not part of alliances	6.2	864
Spar Group	6.2	276			
Wihuri	1.8	322	Total	100.0	4,161

*) Including mobile shops

Source: Päivittäistavara-kauppa ry, 2006

Daily consumer products trade usually refers to supermarkets and hypermarkets (Table 2). They mainly operate on the self-service principle and offer a full range of daily consumer products. Foodstuffs account for around 80 per cent of the overall sales of daily consumer products stores. Finnish consumers prefer to buy meat products and bread from the large stores of multiple chains instead of bakeries or specialised shops. Approximately 94 per cent of all the households have all or some membership card of the multiple chains. The selection of products and the size of stores are quite large: the number of market-type shops has dropped from 9,400 in 1978 to 3,580 in 2004, but total shop space has increased 20 per cent. The number of hypermarkets and large supermarkets is also increasing. However, the number of very small stores such as kiosks is also increasing. Size of daily consumer goods stores is usually categorised as: small shops under 100m², self-service shops under 400m², supermarkets under and over 1,000m² and hypermarkets and department stores over 2,500m². Large and small self-service shops have the greatest number of establishments whereas large supermarkets and hypermarkets cover the greatest sale shares (Tables 1 and 2). The sale share of speciality shops, covered marketplaces and market halls (15 market halls) is small and only some of them sell sausage or rye bread (Päivittäistavara-kauppa ry. 2006; Aalto-Setälä 2002; Nordic Food Markets 2005; Heinimäki 2006).

Table 2. Numbers and Shares of Shops by Distribution Chain in 2005

Shop type	K Group	Spar Group	Other private	S Group	Tradeka	Total number 1.1.2006	Share of shops(%)	Share of sale (%)
Hypermarkets*	53	-	-	47	21	121	2.9	23.9
Department stores*	33	1	72	20	-	126	3.0	5.3
Supermarkets, large*	162	43	101	196	13	515	12.4	32.6
Supermarkets, small*	174	71	14	167	54	480	11.5	14.2
Self-service shops, large**	361	152	56	258	343	1,170	28.1	16.5
Self-service shops, small**	143	7	165	79	232	626	15.0	4.2
Small shops**	115	1	276	22	80	494	11.9	1.9
Speciality shops**	-	-	549	-	-	549	13.2	1.4***
Covered marketplaces**	-	-	28	-	-	28	0.7	
Mobile shops**	21	1	27	3	-	52	1.2	0.2
Total	1,062	276	1,288	792	743	4,161	100.0	100.0
Closed down (real)	44	11	88	8	5	156	3.6	2.4

*) Large stores over 400m²

***) Small stores less than 400m²

****) Including speciality shops and covered marketplaces

Source: A.C. Nielsen Finland Oy in Päivittäistavara-ry, 2006

3.2 Sampling size

Following the technical annex of Foodcomm, the survey responses are required from 75 producers, 25 processors and 20 retailers in each chain in Finland. Furthermore, the retailers should include multiple retailers and selection of other types of retailers. The samples of target groups were taken by TIKE (The Information Centre of the Ministry of Agriculture and Forestry) and Tilastokeskus (Statistics Finland). The following sections and the tables present more in detail the procedures and sampling sizes.

3.2.1 Rye producers

TIKE has an extensive data of all rye producers in Finland. The database includes also rye hectares, email addresses and mobile phone numbers of the sampled farmers. TIKE took the sample according to the criteria of the study (Table 3). The sample had national coverage. However given the geographical pattern of production, it was likely that the sample concentrated on the western and southern Finland. The producer observations, which fulfilled the size and importance criteria, were randomly drawn from all observations. The sample was stratified by rye hectares: the number of sample farms was taken according to the share of each category in the total number of hectares. This enhanced the possibilities to get respondents from all size classes. Table 3 shows the number of rye farms in the different size classes in

2005 (including winter and spring ryes). There were 1,679 farms with less than 5 hectares (the average is 5 to 6 ha) of rye. Although these farms were 52 per cent of all the rye farms, their importance was rather insignificant with respect to the total production. While the farms over 10 rye hectares have a significant role in the Finnish rye production. The total sampling size was 500 rye farmers. According to technical annex, the minimum response number was 75 (15%). The Finnish survey got total 80 rye producer responses in different size classes. Additionally, the geographical pattern of responses concentrated on the western and southern Finland as originally predicted.

Table 3. *Target Population and Sample of the Rye Farms*

Rye ha	Farms	Share of the total farm number (%)	Total rye hectares in the size class	Share of the total rye hectares (%)	Average rye hectares of the farm	Number of sampled farms according to share of total hectares
under 3 ha	990	30.8	1,522	7.0	1.5	35
3 - under 5 ha	689	21.5	2,743	12.7	4.0	64
5 - under 10 ha	931	29.0	6,631	30.7	7.1	153
over 10 ha	602	18.7	10,716	49.6	17.8	248
Total	3212	100.0	21,611	100.0	6.7	500

Source: TIKE, 2005

3.2.2 Rye processors

The stage breakdown was done between primary and secondary rye processors. Primary processors account for about 20 per cent of total companies whereas secondary processors account for the rest. These were also the shares for the sampling size (primary 50, secondary 200, total 250). The primary processors were randomly chosen from the whole target population because of the small size of target population. Meanwhile the secondary processors were stratified by size (the number of employees). The role of small, medium-sized and large secondary processors is emphasised in the survey because of their significance in labour and their large market share. These secondary processors, namely bakeries, hold half of labour and two of the largest bakeries hold 60 per cent of bread markets. The micro-sized bakeries hold the other half of labour, but their role is even more important in number of establishments (Table 4). Due to the small number of small, medium-sized and large bakeries, the sub-groups considered were 1) 100 micro-sized bakeries and 2) 100 the bakeries bigger than micro-sized. Tilastokeskus took the sample according to the criteria of the study (Table 4) but the sample did not include all large processors and thus 1 mill and 4 bakeries (primary extra and secondary extra in Tables 4 and 11) were also included in the survey because of their importance in the sector.

Rye is a marginal raw material, and thus all the sampled processors do not operate with rye or rye bread. The final sampling size was 46 primary processors and 193 secondary processors, total 239 corn processors: 46 primary processors, 95 micro-sized processors and 98 small, medium-sized or large secondary processors. The sample had national coverage. Tilastokeskus has the contact information of all corn processors in Finland but the database includes only postal addresses and phone numbers of the sample processors. Email addresses and mobile phone numbers were searched through Internet. According to technical annex, the minimum response number was 25 (10.5%) (Table 8). The Finnish survey got total 28 rye processor responses (10 mills and 18 bakeries) in different size classes.

Table 4. *Target Population and Sample of the Corn Processors*

	Target population	Sample by Tilastokeskus	Excluded	Extra sample	Final sample
Primary	204	50	5	1	46
Secondary micro	730	100	5	-	95
Secondary large	130	100	6	4	98
Total	1,104	250	16	5	239

Source: Tilastokeskus, 2006b

3.2.3 Pig meat producers

TIKE has an extensive data of all the pig producers in Finland. The database includes the number of pigs, email addresses and mobile phone numbers of the sampled farmers. TIKE took the sample according to the criteria of the study (Table 5). The survey sample included only the specialised fattening/finishing units and integrated units according to the production capacity. The specialised breeding units were excluded, because these farms usually sell their pigs to other farms directly or through middlemen. The sample has national coverage. However, given the geographical pattern of production it was likely that the sample concentrates on the western and southern Finland. The producer observations, which fulfilled the size and importance criteria, were randomly drawn from all the observations. The large pig units have great importance in the sector. Therefore the sample was stratified by the number of pigs: the farm sample was taken according to the share (%) of total number of pigs. This enhanced the possibilities to get respondents from all size categories according to their importance in the sector. Table 5 shows the number of pigs and pig farms in the different size classes in 2005. It should be mentioned that the pig production is going through major structural changes and therefore in the autumn 2006, when the sample was taken, the number of large pig farms (1000 or more pigs) was even higher than in 2005. The total sampling size was 500 pig farmers. According to the technical annex, the minimum response number was 75 (15%) (see Table 8). The Finnish survey got total 76 pig producer responses in different size classes. Additionally, the geographical pattern of responses concentrated on the western and southern Finland as originally predicted.

Table 5. *Target Population and Sample of the Pig Farms*

Size of the pig farms (capacity unit)	Farms	Share of the total farm number (%)	Total pig amount in the size class	Share of the total pig number (%)	Average size of the pig farms (pigs)	Farm sample according to the share of pigs
0-99	601	37.7	24,052	6.1	40	30
100-199	333	20.9	47,927	12.2	144	61
200-399	345	21.6	97,891	24.8	284	124
400-999	265	16.6	155,593	39.4	587	197
1000 or over	50	3.1	68,967	17.5	1379	88 (50)
Total	1,594	100.0	394,430	100.0	247	500 (462)

Source: TIKE, 2005

3.2.4 Pig meat processors

The stage breakdown was done between primary (cereal, seed and feed traders, mill product producers and malt producers) and secondary processors (bakeries and wholesalers). The primary processors' share of the total number of companies is approximately 37 per cent whereas secondary processors' account for 63 per cent. Consequently, these are also the shares for the total sampling size (primary 60, secondary 95, total 155). Primary processors were randomly chosen from the whole target population. Meanwhile secondary meat processors were stratified by size (the number of employees). The role of small, medium-sized and large secondary meat processors (10 or more employees) is emphasised in the survey because of their significance on the labour and market share. They have, for example, 80 to 90 per cent of all employees in the meat sector. This would determine the situation where the share of micro-sized secondary processors would be insignificant in the sample. The micro-sized secondary meat processors are important especially for the number of establishments, whereas the number of establishments of small, medium-sized and large secondary meat processors is small. Due to these facts, the secondary meat processors were divided as the secondary rye processors: 1) 50 micro-sized secondary meat processors and 2) 45 the secondary meat processors bigger than micro-sized. According to Tilastokeskus (2005), there are only 45 meat processors with 10 or more employees in Finland. Tilastokeskus undertook the sample according to the criteria of the study (Table 6), but the sample did not include all the large primary processors and thus six large primary processors (primary extra in Tables 6 and 9) were also included in the survey because of their importance in the sector.

The sample of Tilastokeskus included all the meat processors except poultry processors in Finland. All the sampled processors do not operate with pig meat or sausages and therefore the final sampling size was 59 primary processors and 79 secondary processors, total 138 (Table 6). The final sample was 138 pig meat processors: 59 primary processors, 39 micro-sized secondary processors and 40 small, medium-sized or large secondary processors. The sample had national coverage. The database of Tilastokeskus includes only postal addresses and phone numbers of the sample processors. Email addresses and mobile phone numbers were searched through the Internet. According to the technical annex, the minimum response number was 25 (18%) (Table 9). The Finnish survey got a total of 16 pig meat responses in different size classes.

Table 6. Target Population and Sample of the Pig Meat Processors

	Target population	Sample by Tilastokeskus	Excluded	Extra Sample	Final sample
Primary	121	60	5	6	59
Secondary micro	150	50	11	-	39
Secondary large	45	45	5	-	40
Total	316	155	21	6	138

Source: Tilastokeskus, 2006b

3.2.5 Distributors/retailers

The Foodcomm guidelines state that the survey sample should include different kind of stores, market places and wholesalers (size, importance, ownership) in Finland. The structure of the Finnish distribution and retail sector is very concentrated and two of the largest actors in the retail trade have approximately 75 to 80 per cent market share. Furthermore, large stores, such as hypermarkets and large supermarkets, have a significant share of the total sales. Thus, multiple chains and large stores have a greater weight

in the sample although the share of small actors is important when the number of stores is considered. Large stores over 400m² have a sales share of 76 per cent and the rest is for small stores less than 400m². These were also the shares for the sampling size (large stores 228, small stores 72, total 300).

Tilastokeskus took the sample according to the criteria of the study (Table 7). The sample had national coverage. The food distribution/retailer observations, which fulfilled size criteria (area of sale in stores under and over 400m²), were randomly drawn from all the observations. Tilastokeskus has an extensive contact information register, but the database includes only post addresses and phone numbers of sampled retailers. Email addresses and mobile phone numbers were searched through the Internet. It was soon noticed, however, that the database did not represent the actual situation in Finland: for example the number of large K Group stores was small because of statistical reasons. These stores are usually owned by independent retailers (food department) and K Group (other departments) separately and thus the size criterion failed. Therefore 132 retailers (private extras and chain extra) from dominant multiple chains were also included in the survey. One distributor/retailer was excluded from the survey. The final sample was 431 distributors/retailers: 136 small distributors/retailers and 295 large distributors/retailers. The final sample includes randomly selected chains (280 owned by a retail chain) and independent stores (151 owned by an independent retailer but can be part of some retail chain) (Tables 7 and 10). According to the technical annex, the minimum response number was 20 retailers per each chain, total being 40 (9.3%). The Finnish survey got 24 retailer responses in total (16 rye bread and 8 sausage responses).

Table 7. Target Population and Sample of the Distributors/retailers

Ownership	Target population	Sample by Tilastokeskus	Excluded	Extra sample	Final sample
Chain over 400m ²	518	185	-	-	185
Private over 400m ² *	724	43	1	68	110
Chain under 400m ²	1,014	61	-	34	95
Private under 400m ² **	1,902	11	-	30	41
Total	4,161	300	1	132	431

*) Includes eight privately owned retailer stores without any chain connection.

***) Includes three privately owned retailer stores without any chain connection.

Source: A.C. Nielsen Finland Oy in Päivittäistavara-ry, 2006

Table 8. Producer and Processor Sample for the Cereal-to-Rye Bread Chain

Actor	Type	Total sampling size	Response number
Producers	- Rye farmers	500 rye farmers randomly chosen from the target population stratified by rye hectares (importance): - Under 3ha: 35 - 3 - under 5ha: 64 - 5 - under 10ha: 153 - Over 10ha: 248	- Minimum was 75 farmers in different size classes. - Achieved response number was 80 farmers in different size classes.
Processors	- Primary processors in the rye bread chain: - Corn traders - Malt houses - Mill product producers - Secondary processors in the rye bread chain : - Bakeries	239 rye processors stratified by stage (primary and secondary) and size (micro-sized and the other secondary processors): - Primary: 46 - Secondary: 193 - Micro-sized: 95 - Others: 98	- Minimum was 25 processors - Achieved response number was 28 processors

Table 9. *Producer and Processor Samples for the Pig Meat-to-Sausage Chain*

Actor	Type	Total sample size	Response number
Producers	<ul style="list-style-type: none"> - Pig farmers: - Integrated units - Specialised finishing units 	500 farmers randomly chosen from the target population stratified by number of pigs (importance): <ul style="list-style-type: none"> - 0 - 99 pigs: 30 - 100 – 199 pigs: 61 - 200 – 399 pigs: 124 - 400 – 999 pigs: 197 - 1000 pigs or over: 88 	<ul style="list-style-type: none"> - Minimum was 75 farmers in different size classes. - Achieved response number was 76 farmers in different size classes.
Processors	<ul style="list-style-type: none"> - Primary processors in the sausage chain: - Acquisition an advisor organisations - Slaughterhouses - Meat and meat product wholesalers - Secondary processors in the sausage chain: - Sausage producers (incl integrated units) 	138 pig meat stratified by stage (primary and secondary) and size (micro-sized and the other secondary processors): <ul style="list-style-type: none"> - Primary: 59 - Secondary: 79 <ul style="list-style-type: none"> - Micro-sized: 39 - Others: 40 	<ul style="list-style-type: none"> - Minimum was 25 processors, - Achieved response number was 16 processors

Table 10. *Distribution/Retailer Samples for the Pig Meat-to-Sausage and Cereal-to-Rye Bread Chains*

Retailers	<ul style="list-style-type: none"> - Large stores - Stores owned by chains - Independently owned - Small stores - Stores owned by chains - Independently owned 	431 retailer stores stratified by size (m ²) and ownership: <ul style="list-style-type: none"> - Large stores: 295 <ul style="list-style-type: none"> - Owned by chains: 185 - Independently owned: 110 - Small stores: 136 <ul style="list-style-type: none"> - Owned by chains: 95 - Independently owned: 41 	<ul style="list-style-type: none"> - Minimum was 20 retailer stores per each chain. - Achieved response number was 24 processors: <ul style="list-style-type: none"> - Rye chain: 16 - Pig meat chain: 8
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3.3 Carry-out survey details

Research data was collected by a web-based survey platform and postal questionnaire. The total number of responses was 224. Rye and pig meat producers, processors and retailers got several times emails and text messages. However, unnecessary marketing was avoided and therefore those who had answered the survey were removed from contact information data. Despite many marketing efforts, the survey did not reach the minimum response numbers in all the categories. This might be because of the long and rather complex questionnaire. Furthermore, people are more willing to answer if the contact, such as a phone call, is personal. Because of the large number of observations, it was impossible to have personal contacts with all the participants. Table 11 presents in detail the marketing of the survey.

Table 11. *Marketing of the Survey*

Chain/ actor	Stage	Size criterion	Final sample	Marketing emails (number of times)	Marketing messages to mobile phones (number of times)	Number of posted questionnaires
Rye	Producer	Importance	500	5	2	208
	Primary	None	45	5	3	42
	Primary extra	None	1	3	-	-
	Secondary small	Under 10 employees	95	4	3	89
	Secondary large	Over 10 employees	94	5	3	95
	Secondary large extra	Over 10 employees	4	3	-	11
	Total rye	All	739	25	11	445
Pig meat	Producer	Importance	500	5	3	283
	Primary	None	53	5	4	52
	Primary extra	None	6	4	-	2
	Secondary small	Under 10 employees	39	6	4	37
	Secondary large	Over 10 employees	40	7	4	30
	Total pig meat	All	638	27	16	404
Retail	Chain	Over 400m ²	185	6	4	183
	Private	Over 400m ²	42	6	4	42
	Private extra	Over 400m ²	68	4	2	68
	Chain	Under 400m ²	61	6	4	61
	Chain extra	Under 400m ²	34	4	2	34
	Private	Under 400m ²	11	6	4	11
	Private extra	Under 400m ²	30	4	2	30
	Total retail	All	431	36	12	429
Total	Total all	All	1,808	88	39	1,278

4. Results of the descriptive analysis of the data

(Merja Lähdesmäki, Leena Viitaharju, Hannele Suvanto, Sanna-Helena Rantala)

This section presents the results of the analysis of two selected Finnish food chains, namely the pig meat-to-sausage chain and the cereal-to-rye bread chain. This section is structured as follows: first, a descriptive analysis for pig-meat-to-sausage chain is discussed. After this the same information concerning the cereal-to-rye bread chain is provided. Finally, the similarities and differences between the two chains are analyzed.

4.1 Pig meat-to-sausage chain

4.1.1 Sample distribution and representativeness

Within the pig meat-to-sausage chain, a questionnaire was sent to 500 pig meat producers, 138 processors and 431 distributors/retailers⁴, which make 1069 potential respondents. A total of 100 usable questionnaires were returned (76 pig meat producers, 16 processors and 8 retailers, see Table 12). The majority of the responded businesses were small in size when measured by the number of employees. There were only three firms, two processors and one retailer, who had more than 50 employees. The processors and the retailers were rather well established businesses as their average age was 40 years. The age of the farms was not asked in the questionnaire as they often have existed for decades or even centuries in the possession of the same family. The majority of the respondents (85.4%) were either the owners of the businesses or had senior management positions.

Table 12. *Pig meat-to-sausage chain, sampling frame*

Businesses	Sample	Target Size
Farms	76	75
Processors	16	25
Retailers	8	20

The responded businesses were located in 16 Finnish provinces, although the emphasis of the regional distribution of responses was in Southwest Finland (25.3% of all the responses), followed by Tampere region and South Karelia (11.1 % and 10.1% respectively). The bias of the responses towards Southwest Finland can be due to the fact that the region in question is one of the most important areas for pig meat production in Finland, as approximately 23 per cent of the Finnish pig farms are located there (TIKE 2005). In general, the emphasis of geographical distribution of the businesses surveyed here is on southern Finland, while the two most northerly regions of Finland, i.e., Oulu region and Lapland, did not have any responses.

⁴ The number of questionnaires sent especially to retailers/distributors operating in the pig meat-to-sausage chain cannot be identified. The number reported here indicates the amount of questionnaires sent to retailers in Finland in general. Therefore, the response rate for the chain cannot be defined. The response rate for the entire data (i.e. including the respondents both in the pig meat-to-sausage chain and the cereal-to-rye bread chain) was 12.4 percent.

4.1.2 Chosen relationship types

Over half of the studied businesses (51.1%) stated formal, bilateral contracts as their most often used relationship type (see Table 13). Furthermore, financial participation arrangements (20.0%) and market transactions with the same business partner (15.6%) were also in general common relationship types within the chain, while the existence of spot markets was very rare (1.1%). There were, however, some distinctions between the different respondent groups. For the majority of the farmers (52.2%) and the downstream processors (66.7%) formal contracts were the most often used relationship type, as was also frequently the case with the upstream processors (33.3%). In addition to formal contracts, the upstream processors considered market transactions with the same supplier (33.3%) equally prevalent among their relationship types. The majority of the retailers (50.0%), on the other hand, characterized their business relations equivalent to financial participation arrangements.

Table 13. Use of different relationship types in the pig meat chain (% of column total)

	Stakeholder				Average %
	Farmers →	← Processors	Processors →	← Retailers	
Spot markets	1.4	0.0	0.0	0.0	1.1
Market transactions with same buyer/supplier	14.5	33.3	22.2	0.0	15.6
Formal (written) bilateral contracts	52.2	33.3	66.7	33.3	51.1
Financial participation arrangements	20.3	16.7	0.0	50.0	20.0
Mixed	11.6	16.7	11.1	16.7	12.2
Total n	100 (n=69)	100 (n=6)	100 (n=9)	100 (n=6)	100 (n=90)

The business relationships with formal contracts constituted an important share of the annual turnover for the farmers and the downstream processors in the data (47% and 62% respectively). It is interesting to notice, that although repeated market transactions and formal contracts were stated to be equally prevalent by the upstream processors, they, however, considered the former relationship type to be far more important in relation to the annual turnover than the latter (52% and 20% respectively). For the retailers, the business relations characterized by financial participation were considered to form approximately 43 percent of their annual turnover. In general, regardless of the relationship type mainly used at the moment, the respondents stated that especially financial participation has gained more important role in their business operations during the last five years. In the future, i.e. during the next five following years, the importance of formal contracts was, however, estimated to grow most.

The majority of the respondents (60%) thought that they are not free to choose the relationship type by themselves. Although the response rate in this question was very low (the total number of responses to this question was 35), it still indicates interesting differences between the stakeholders. Within the relationship between the farmers and the upstream processors, all the processors regarded themselves to be free to choose the relationship type autonomously, while only approximately one third of the farmers (34.8%) shared this view. In case of the farmers, the lack of decision making power concerning the relationship type was especially due to a membership of a cooperative (34.8%). On the other hand, within the relationship between the downstream processors and the retailers, the majority of both stakeholder groups (66.7% and 100% respectively) felt themselves somewhat restricted when choosing the relationship type. A business partner's buying practice was considered to mainly restrict the freedom of choice

in the case of the processors (66.7%), while a membership of a cooperative (50.0%) and insufficient bargaining power (25.0%) were the main reasons for the retailers to feel unable to make autonomously the choice concerning the relationship type.

According to the data, spot markets are very uncommon relationship type within the pig meat-to-sausage chain. Spot markets were mainly used by a small minority of the farmers (1.4%) and the economic meaning of these relationships, i.e., their share of the annual turnover, was not very significant. The main reason for using these kinds of relationships relates especially to flexibility they provide when dealing with business partners as well as their easiness and convenience. The respondents could not state any particular reason which has prompted the business to make more use of spot markets. However, they did disagree with the statements that the increased prevalence of quality assurance systems or consumer demand would have an effect on the increasing usage of spot markets.

In comparison with spot markets, market transactions with the same business partners was a little more common relationship type among the data. These kinds of relationships were mainly used between the farmers and the upstream processors (14.5% and 33.3% respectively), while none of the retailers stated this relationship option. For the farmers, the main reason to use repeated market transactions was the personal relationship with a buyer. In addition to this, the upstream processors stated easiness and convenience as well as a common business practice as the main reasons for using repeated market transactions. Both the farmers and the upstream processors agreed that increased competition is the main driver for motivating them to use repeated market transactions.

Formal written contracts were commonly used in every respondent group. The respondents did not state any single argument to be the most important reason for using formal contracts, neither were there any noteworthy differences between the respondent groups (Figure 6). Instead, they all agreed that the security of supply or demand brought along by these contracts is essential to the businesses. Furthermore, formal contracts are also appreciated because they provide the businesses guaranteed levels of service or product quality. The majority of the respondents also agreed that formal contracts are a common business practice in their field of industry. In general, the increased competition and the prevalence of a quality assurance system were considered essential developments in the business environment to make more use of formal contracts.

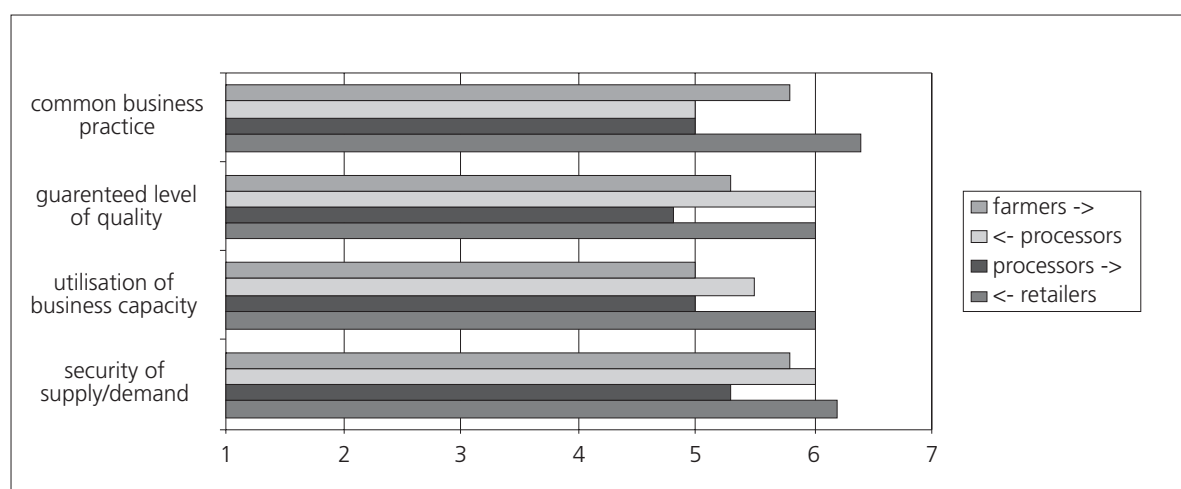


Figure 6. Reasons for using formal written contracts in the pig meat chain.⁵

⁵ Degree of agreement expressed on a 7-point Likert scale (1=strongly disagree,...,7=strongly agree).

According to the data, financial participation arrangements existed especially among the retailers, although also one fifth of the farmers and 16.7 percent of the upstream processors used these kinds of business relationships, while none of the downstream processors used financial participation arrangements. The majority of all the respondents agreed that a long positive collaboration history is an important reason for using financial participation arrangements. In the case of the farmers and the upstream processors, financial participation is also considered as a common business practice in the field, while the retailers appreciate these kinds of relationships because they help them to share risks with their business partners. The increased prevalence of quality assurance systems is one of the most important developments in the business environment for the farmers and the retailers to make more use of financial participation arrangements. The retailers further emphasized the importance of sophisticated consumer demand to motivate the usage of these business relations.

The majority of all the respondents (91.2%) shared the opinion that their business has not become more vertically integrated during the last five years. Approximately 96.6 percent of the respondent businesses did not plan any vertical integration activities in the future either. The most positive view concerning the integration was among the retailers, of whom 50.0 percent thought that there has been some vertical integration in the near past, while none of the processors and only 7.0 percent of the farmers agreed with this statement. In the case of the farmers, a sophisticated consumer demand as well as an aspiration to capture more of the value added within the chain were the main reasons for increased integration, while the retailers highlighted especially the importance of consumer demand.

4.1.3 Nature of the relationship with the most important partner

The economic role of the most important business partner had for the annual turnover of businesses varied greatly among the respondent groups. In the case of the farmers, the main business partner constituted approximately 74.0 percent of the annual turnover of their businesses. The economic role of the main business partner was less important among the upstream and the downstream processors (40.0% and 30.0% respectively) as well as among the retailers (38.0%). In all the respondent groups the main business relations were long-term relations, especially among the downstream processors and the retailers who had co-operated with the same business partner approximately 20 years already. The farmers and the upstream processors had a little shorter common history with their main business partners, namely approximately ten years. The majority of the farmers (63.9%) indicated that their main business partner was located in the neighbouring area, i.e., in the same or nearby region. The other respondent groups indicated more geographical variation concerning the location of the main business partner. The main characteristics of the relationship with the most important business partner are presented in Table 14.

Table 14. Characterisation of relationship with most important buyer/supplier in the pig meat chain

	Stakeholder			
	Farmers →	← Processors	Processors →	← Retailers
Approximate share in % of total annual turnover/purchasing value	74 [75]	40 [6]	30 [9]	38 [8]
Average length of relationship in months	129	108	221	228
Buyer/supplier in same region (% saying yes)	63.9 [46]	25.0 [1]	33.3 [2]	50.0 [4]

Note: in square brackets no. of valid responses [n].

In general, the relations with the main business partner were based on formal contracts (see Table 15). In addition to this, some farmers also indicated that they use repeated market transactions (13.7%) and financial participation (12.3%) with their main business partners. Repeated market transactions were also used by some upstream and downstream processors while some of the retailers made financial participation arrangements with their main suppliers. In the case of the farmers, the main business partner was usually a processor (95.9%), while the majority of the upstream processors in this data (66.7%) had their main business partner among other processors. Furthermore, the majority of the downstream processors (83.3%) had their main business partner among retailers and vice versa.

Table 15. Most important relationship type with main supplier/buyer in the pig meat chain (% of column total)

	Stakeholder			
	Farmers →	← Processors	Processors →	← Retailers
Repeated market transactions	13.7	50.0	16.7	0.0
Contracts	71.2	50.0	83.3	50.0
Financial participation	12.3	0.0	0.0	37.5
Others	2.7	0.0	0.0	12.5
Total n	100 (n=73)	100 (n=4)	100 (n=6)	100 (n=8)

In general, the farmers characterized the relationships with their main business partners as having growth potential and indicated that the amount of business between them has grown over the last two years. It is worth noticing though, that the farmers slightly disagreed with the statements of equal partners and strong personal nature of their main business relations. The upstream processors, on the other hand, described their relationships with their main suppliers as commercially rewarding and equal relationships. They also somewhat agreed that their relations with their main business partners are based on strong personal relations. Furthermore, neither the farmers nor the upstream processors believed that the relationships were based only on the existence of key persons. The downstream processors and the retailers, on the other hand, had even more positive view on their main business relations compared to the farmers and the upstream processors. They stated their main business relations to have a lot of future growth potential and being commercially rewarding. Furthermore, especially the retailers indicated that the amount of business had also grown during the last two years. None of the stakeholder group respondents agreed that their business relations would come to an end if the key people left the business. The nature of the relationship with the most important business partner is presented in Figure 7.

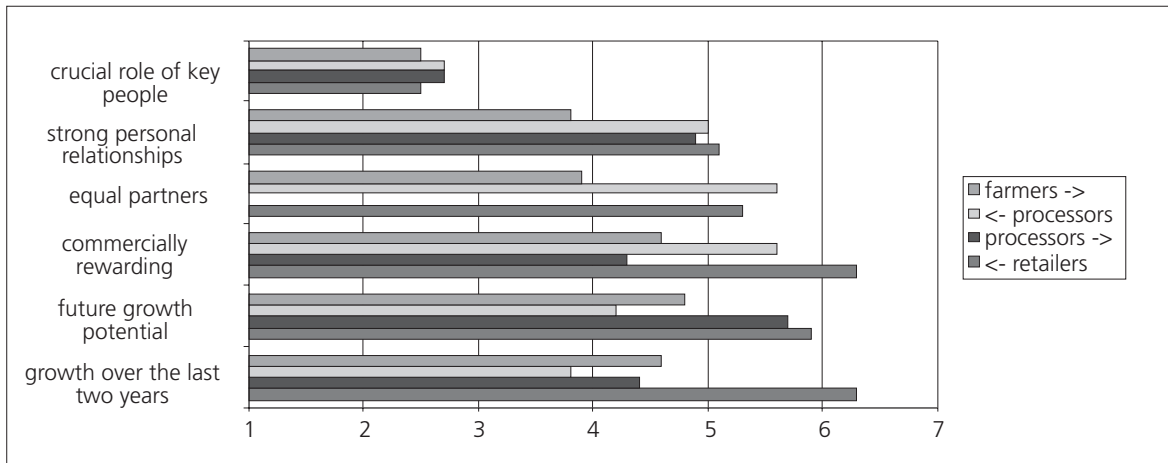


Figure 7. Nature of relationship with main buyer/supplier in the pig meat chain.⁶

Overall, the quality of the main business relationships (i.e. trust, satisfaction and commitment) was estimated to be rather good in all the respondent groups. All the stakeholders indicated that they trusted their business partners and were rather committed to their business relations. There were slight differences between the respondent groups concerning the satisfaction with the main business partner. According to this data, the farmers were generally a little less satisfied with their main business relations compared with the processors and the retailers. Furthermore, the respondents were also asked to assess the strength of the main relationship (i.e. dependence, ability to endure conflicts and collaboration history). All the respondent groups, except the upstream processors, stated to be rather dependent on their main business relations. The farmers and the processors further had a rather neutral stance for their ability to endure the relationship conflicts, while the retailers were optimistic on this issue. The collaboration history with the main business partner was assessed to be rather satisfying in all the respondent groups, though the retailers reported slightly higher scores compared to the other groups.

The majority of the respondents stated that their main business relationship has a positive effect on profitability, turnover, cost reduction, customer retention and product or process quality of the business. The main business relations were not regarded to have any major negative effects on the business operations, but they were considered to have least effect on innovation (according to all the respondent groups) and market share (according to the farmers and the upstream processors).

4.1.4 Nature of communication with the most important partner

In general, the phone, face-to-face communication and e-mail were the most important means of communication among the respondents. The farmers appreciated especially the phone as well as the intranet as an important means to keep in contact with the business partners. For the upstream processors, the phone was by far the most important communication means and for the downstream processors, face-to-face communication and e-mail were considered as an essential means of communication. Similarly, the retailers appreciated especially e-mail. In every stakeholder group, the role of video conferencing was estimated to be rather minimal as a communication means.

The majority of the farmers as well as half of the processors considered that in order to maintain the relationship with the main business partner, communication should occur at least once a week (see Table 16). The retailers preferred less frequent communication, since 37.5 percent of them thought that in order to maintain the relationship it is enough to communicate at least once every three months. It is

⁶ Degree of agreement expressed on a 7-point Likert scale (1=strongly disagree, ..., 7=strongly agree).

worth noticing, that the retailers stated their actual communication to be more frequent than they considered it to be necessary, i.e. 62.5 percent of them communicated with their main business partner at least once a week or more often, as do all the upstream processors too. The majority of the farmers and the downstream processors (65.3% and 100.0% respectively) communicate with their main business partners at least once a month or more often. There are, however, a number of farmers (16.0%) who communicate with their buyers less than every three months.

Table 16. *Communication frequency necessary to maintain relationship with main buyer/supplier in the pig meat chain (% of column total)*

	Stakeholder			
	Farmers →	← Processors	Processors →	← Retailers
Daily	0.0	50.0	0.0	12.5
At least once a week	39.2	50.0	50.0	25.0
At least once a month	29.7	0.0	50.0	25.0
At least once every 3 months	20.3	0.0	0.0	37.5
Less than once every 3 months	10.8	0.0	0.0	0.0
Total n	100 (n=74)	100 (n=4)	100 (n=6)	100 (n=8)

Personal meetings with the main business partners were not as frequent as the actual communication. A small minority of the respondents meets their business partners at least once a week or more often, while for the majority of the respondents (54.3%) personal meetings take place less than once every three months. On the average, the retailers meet their main business partners more often compared to the other respondent groups. All the respondent groups seemed to be fairly pleased with the communication frequency and information quality (i.e. relevance, timeliness and reliability of the communication) although the upstream processors and the retailers indicated slightly higher scores in relation to communication frequency and quality of information than the farmers and the downstream processors.

The majority of the farmers and the upstream processors stated that communication with the main business partner has a positive effect on profitability, turnover, cost reduction, customer retention, and product or process quality. According to them, communication has no effect on the market share and innovation. The majority of the downstream processors and the retailers considered communication to have a positive effect on profitability, turnover, market share, customer retention and product or process quality. The retailers further stated a positive connection between communication and cost reduction and innovation, whereas the downstream processors, on the other hand, saw neither positive nor negative connections.

4.1.5 *Factors influencing economic relationships and communication*

The majority of the respondents in the pig meat-to-sausage chain did not have any private or non-mandatory public quality assurance system with traceability requirements applied in their businesses. It should be mentioned though, that the total number of responses in this question was rather low, especially among the processors and the retailers.

All the respondent groups fully agreed with the statements that within the food branch, above average product quality is important and that there exists a strong competition within the food market. There was, however, some disagreement concerning the certainty of the markets. The downstream processors considered that the market is actually very uncertain regarding the market condition and the price level, but the upstream processors as well as the retailers did not consider this to be true. The farmers had a somewhat neutral stance to this argument.

The majority of the businesses within the pig meat-to-sausage chain were not very embedded in the local or regional economy when considering the identity of products or the location of suppliers (see Table 17). The retailers were the only stakeholder group in which the majority of the respondents (71.4%) argued to distribute products with a strong local identity while in the other respondent groups this was more rare. Although the majority of suppliers of the respondent businesses do not generally locate nearby the businesses, the majority of buyers, on the other hand, are more often located in the same region as the business itself. This is the case especially among the upstream processors and the retailers, who also seemed to participate in local events or donate money to the local community more often when compared to the farmers and the downstream processors.

Table 17. *Embeddedness of respondent companies in local/regional economy in the pig meat chain (% saying yes)*

	Stakeholder			
	Farmers →	← Processors	Processors →	← Retailers
The products that our company produces/ distributes have a strong local or regional identity	2.7	33.3	33.3	71.4
The majority (>50%) of our suppliers are located in the region in which our company is located	43.2	33.3	11.1	14.3
The majority (>50%) of our buyers are located in the region in which our company is located	36.5	66.7	22.2	57.1
Our company participates in local events or donates money to the local community	14.7	50.0	33.3	100.0

There were not any major differences between the stakeholders concerning the business culture of their companies. The majority of the respondents in every group agreed that their company tries to avoid uncertainty whenever possible. They also appreciated doing business on as long-term basis as possible, though the majority of the farmers and the retailers indicated slightly higher scores on this argument when compared to the processors. Independence of the business was also considered to be important in every respondent group. The farmers and the downstream processors further agreed that the unbalanced power composition (i.e., the buyer is more powerful than the business itself) is not an obstacle to the existence of a business relationship.

All the respondent groups also agreed that trust, commitment and satisfaction with the business partners are important elements for their business operations (see Figure 8). The farmers, however, indicated the importance of commitment with the buyers to be slightly less important than the other stakeholders did. Further agreement existed between the respondents concerning the importance of positive past collaboration experiences with their business partners as well as the essentiality of independence of the business in relation to the business partners. The farmers, the downstream processors and the retailers also regarded the ability of relationships with business partners to endure conflicts as important, while

the upstream processors had somewhat more neutral stance on this argument. All the stakeholders rather equally appreciated the quality of information received from the business partners. Meanwhile, the majority of the upstream processors and the retailers indicated the adequate frequency of communication with the business partners to be slightly more important when compared to the farmers and the downstream processors.

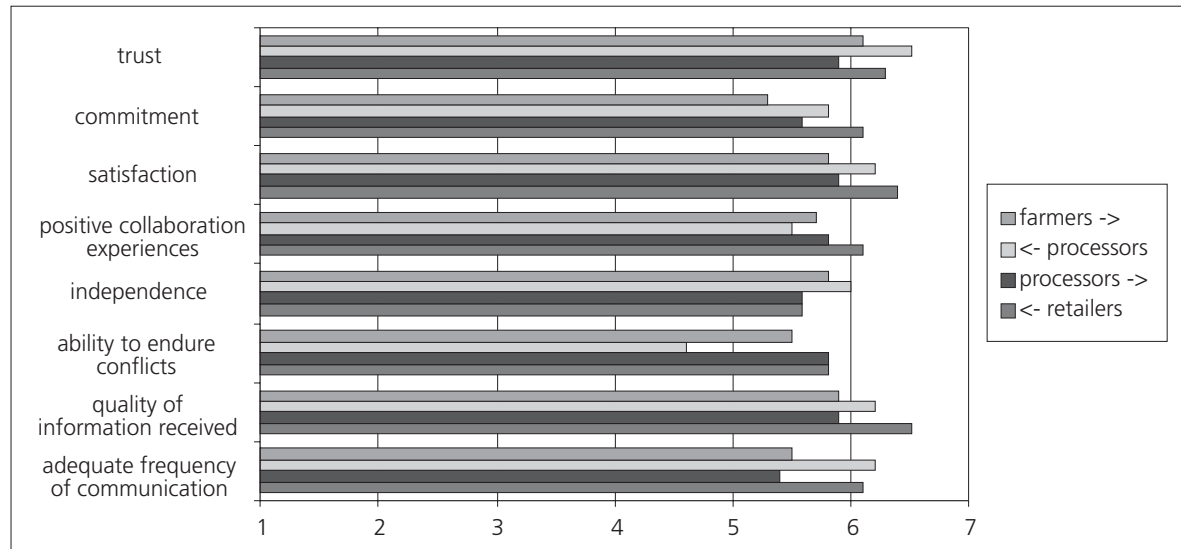


Figure 8. Importance of relationship and communication characteristics in the pig meat chain.⁷

4.2 Cereal-to-rye bread chain

4.2.1 Sample distribution and representativeness

Within the cereal-to-rye bread chain, a questionnaire was sent to 500 rye producers, 239 processors and 431 distributors/retailers⁸, which make a total of 1170 potential respondents. A total of 124 usable questionnaires were returned (80 rye producers, 28 processors and 16 retailers, see Table 18). The responded businesses were rather small. The size of the farms both in hectares and in number of employees was small throughout the respondents. No large or even medium-sized farms were among the respondents. This represents very well the situation in Finland as rye, despite its strong socio-cultural meaning, rarely is the main production crop in farms. The average rye area harvested by a farm is around 5.5 to 6.0 hectares. The size of the processors and the retailers was also mainly small (69.6% and 78.6% respectively). In number of employees, 26.1 percent of the processors and 14.3 percent of the retailers were medium-sized businesses. Approximately 93 percent of the respondents of the farmer stakeholder group were business owners. Among the upstream and the downstream processors the share of owners or senior managers was 55.5 percent and 73.3 percent respectively. Two thirds of the retailers were business owners or senior managers. The processor and the retail businesses were rather well established as the average age of the businesses varied from 37 to 60 years. In the case of the farms, the age was not addressed as many farms have existed for decades or even centuries in the possession of the same family, generations in succession.

⁷ Degree of agreement expressed on a 7-point Likert scale (1=completely unimportant, ..., 7=very important).

⁸ The number of questionnaires sent especially those retailers/distributors operating in the cereal-to-rye bread chain cannot, however, be identified. The number reported here indicates the amount of questionnaires sent to retailers in general. Therefore, the response rate for the chain cannot be defined. The response rate for the entire data (i.e., including the respondents both in pig meat-to-sausage chain and cereal-to-rye bread chain) was 12.4 percent.

Table 18. *Cereal-to-rye bread chain, sampling frame*

Businesses	Sample	Target Size
Farms	80	75
Processors	28	25
Retailers	16	20

The regional distribution of the respondents covered more or less the whole country in Finland (excluding the region of Åland). The emphasis of the responses was in regions locating in southern and western Finland, especially among the farmers and the processors. This is a rather good sample in terms of the regional distribution as the statistics show (TIKE 2005) that rye is, in fact, predominately produced in western and southern parts of Finland due to the most favourable climate conditions in the country.

4.2.2 Chosen relationship types

As can be seen in Table 19, in a general level, the most common relationship type (35.5%) among all the rye chain respondents was formal written contracts. On average, 22 percent of the total annual turnover was created in relationships based on formal contracts. The use of different relationship types varied quite a lot depending on the stakeholder in question. Over 65 percent of the farmers used either spot markets or formal contracts, but no more than 37 percent of the annual turnover was reported to be created by these two types of relationships. Also repeated market transaction was used by 16 percent of the farmers. The upstream processors' most common relationship type was formal contracts (66.7%) yielding 30 percent of the total annual turnover, whereas the downstream processors' most common relationship type was repeated market transaction with the same buyer (56.3%) yielding 51 percent of the total annual turnover. The retailers mainly used formal contracts (53.8%) with their suppliers, but stated that the share of this relationship type of the total annual turnover was as low as 24 percent and the share of repeated market transaction even 25 percent.

Table 19. *Use of different relationship types in the rye chain (% of column total)*

	Stakeholder				Average %
	Farmers ->	<- Processors	Processors ->	<- Retailers	
Spot markets	36.0	16.7	6.3	7.7	27.3
Market transactions with same buyer/supplier	21.3	0.0	56.3	30.8	26.4
Formal (written) bilateral contracts	30.7	66.7	31.3	53.8	35.5
Financial participation arrangements	1.3	0.0	0.0	0.0	0.9
Mixed	9.3	16.7	6.3	0.0	8.2
Other type	1.3	0.0	0.0	7.7	1.8
Total n	100 (n=75)	100 (n=6)	100 (n=16)	100 (n=13)	100 (n=110)

The survey respondents were asked to state whether the relationship type in question had become more important during the past five years or not, and whether they believe it to become more important during the next five years or not. Independent from the type of relationship a business is currently using, the majority of the respondents indicated that the particular type of relationship has become more impor-

tant for their business during the past five years. In terms of future developments in importance of the different relationship types, the respondents using whatever relationship type answered formal written contracts to rise in importance. The only exception were the businesses using financial participation: almost 70 percent of those businesses thought that financial participation as a relationship type with business partners will grow in importance during the next five years.

The farmers considered themselves to be rather free to choose the relationship type (81%) to use with their business partners. Some of the farmers answered also 'no', as customers' buying practices or low bargaining power were seen as hindering reasons. Half of the downstream processors thought that they are free to choose the relationship type and half of them thought that customers' buying practices have a hindering effect. In case of the retailers, 40 percent of the respondents considered themselves free to choose the relationship type, and the rest indicated that as a member of a cooperative (30%), because of legal requirements or regulations (10%), or for other reasons (20%) they are not free to choose the relationship type.

In all the respondent groups, the reason for choosing spot markets as a relationship type was mainly due to its provision of required flexibility in dealing with business partners. The retailers preferred spot markets also due to former bad experiences with longer-term commitments (it must be noticed though, that there were only two retailer respondents in this case). The farmers and the downstream processors highlighted the importance of convenience of spot markets to use. As a driver for using spot markets, the farmers considered the increased competition having an effect on making more use of it. Among the other stakeholder groups, there were practically no responses to this question.

The reason for choosing repeated market transactions with the same buyer or supplier got various assessments by the different respondent groups. The farmers indicated that the existing personal relationships or the ease of use were the main reasons to use repeated market transactions with their buyers. The upstream processors preferred market transactions due to their effect on minimising costs in search for a business partner, but also the ease of using and a common business practice were mentioned as influential reasons. The downstream processors stated former personal relationships having the greatest effect on choosing repeated market transactions, but also the ease of use was nearly equally important. The most important reason among the retailers to choose repeated market transactions was the ease of use. As a driver for using repeated market transactions, the processors considered the increased competition. No other reasons were assessed positively in any other stakeholder group.

Formal written contracts seemed to be highly appreciated by all the respondent groups and various reasons for choosing it as a relationship type were indicated in all the groups (see Figure 9). The farmers emphasised mainly the provision of security in demand, but the written contracts were also seen as a common business practice. The upstream processors considered all the reasons mentioned to be important, but the provision of security in supply and a guaranteed level of service or product quality were assessed as two most important. Also the downstream processors and the retailers considered all the reasons mentioned to be relatively important. In addition to the security of demand, the full utilisation rate of the business capacity was emphasised by the downstream processors. The retailers considered the common business practice in the industry as the main reason to use formal contracts, but also all the other reasons got high scores (high 5s and 6s). The driver that had prompted the use of formal contracts throughout the data was the increased prevalence of private or public quality assurance systems. In addition to that, both the upstream and the downstream processors emphasised also the increased competition. Even though the quality assurance systems were important for the retailers too, the increased competition and increasingly sophisticated consumer demand got the highest scores among them.

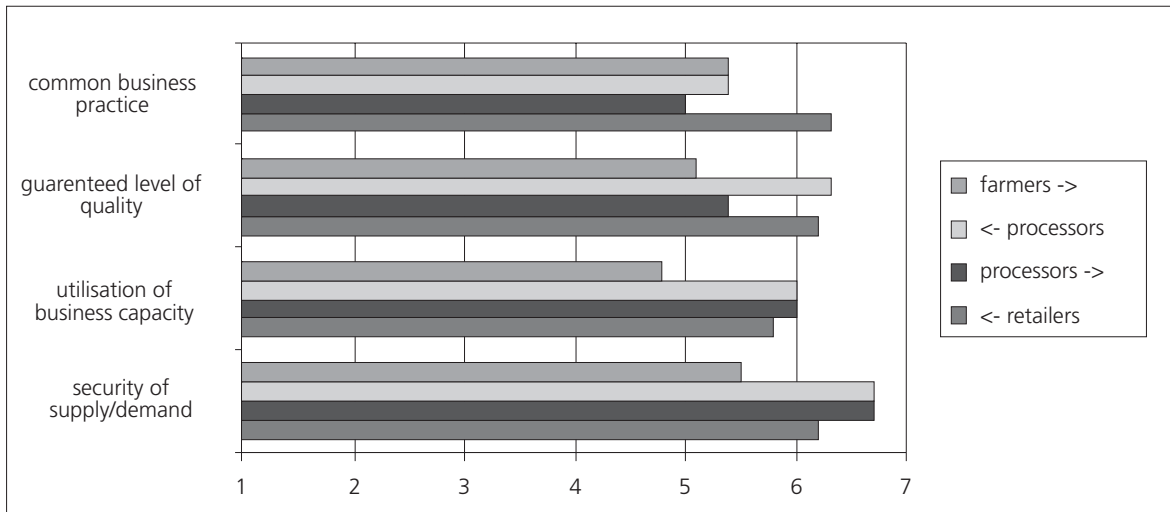


Figure 9. Reasons for using formal written contracts in the rye chain.⁹

The question concerning reasons for choosing financial participation arrangements was mainly answered by the farmers and the retailers, and even in these groups the number of respondents was low. Both the farmers and the retailers considered almost all the reasons to be relatively important, however, the convenience of using financial participation got the highest scores among both the respondent groups.

Most of the respondents (approximately 80%-100%) thought that there had not been any increase in vertical integration activities during the past five years. It was only part of the retailers (21.4%) that considered some increase having taken place during that time. Nearly all the respondents in all the stakeholder groups answered that no vertical integration activities are to happen in the next five years either. The retailers stated that the main driver for the increase in vertical integration activities were the increased prevalence of private or public quality assurance systems.

4.2.3 Nature of the relationship with the most important partner

It characterised very well the relationship with the most important supplier or buyer in all the respondent groups in the cereal-to-rye bread chain that on average 30 percent or more of the total annual turnover was generated by that particular relationship. The average length of the most important business relationship with a buyer or supplier varied from ten years (farmers) to over 16 years (retailers). The physical closeness of the main buyer or supplier was also asked, i.e. is the business located in the same region as the respondent or not. Approximately 90 percent of the farmers were selling their produce to buyers located in the same region. The share of local buyers or suppliers was 80 percent among the downstream processors and 81.3 percent among the retailers, whereas only 55.6 percent of the upstream processors had the main supplier in the region. The main characteristics of the relationship with the most important business partner are presented in Table 20.

⁹ Degree of agreement expressed on a 7-point Likert scale (1=strongly disagree, ..., 7=strongly agree).

Table 20. *Characterisation of relationship with most important buyer/supplier in the rye chain*

	Stakeholder			
	Farmers →	← Processors	Processors →	← Retailers
Approximate share in % of total annual turnover/purchasing value	33.0 [80]	33.0 [9]	34.0 [16]	30.0 [16]
Average length of relationship in months	124 [80]	148 [9]	164 [16]	197 [16]
Buyer/supplier in same region (% saying yes)	90.7 [75]	55.6 [9]	80.0 [15]	81.3 [16]

Note: in square brackets no. of valid responses [n].

Formal contracts were the relationship type that was used most often with the main buyer or supplier in all the respondent groups (see Table 21). Also repeated market transactions were rather frequently used, especially by the farmers (43%). Financial participation was very rarely used, but also other types of relationships were indicated to be in use. The main buyer or supplier was in most occasions a processor both in case of the farmers (55.8%), the upstream processors (62.5%), the downstream processors (50%) and the retailers (56.3%).

Table 21. *Most important relationship type with main supplier/buyer in the rye chain (% of column total)*

	Stakeholder			
	Farmers →	← Processors	Processors →	← Retailers
Repeated market transactions	43.0	12.5	31.3	20.0
Contracts	48.1	75.0	62.5	66.7
Financial participation	1.3	0.0	0.0	0.0
Others	7.6	12.5	6.3	13.3
Total n	100 (n=79)	100 (n=8)	100 (n=16)	100 (n=15)

The processors and the retailers thought that the amount of business had grown over the past two years with the main buyer or supplier. Among the downstream processors the growth had been the strongest. In case of future growth potential, it was again the processors and the retailers who believed positive developments to happen. The farmers indicated that the nature of the relationship with the main business partner was best characterised by the statement that the relationship is commercially rewarding. Both the upstream and the downstream processors and the retailers emphasised the rewarding and equal partnership aspects of their relationships, but also strong personal relationships were important for the downstream processors. None of the respondents in any stakeholder group strongly believed that any key people leaving the company would end their business relationship with the most important partner. The nature of the relationship with the most important business partner is presented in Figure 10.

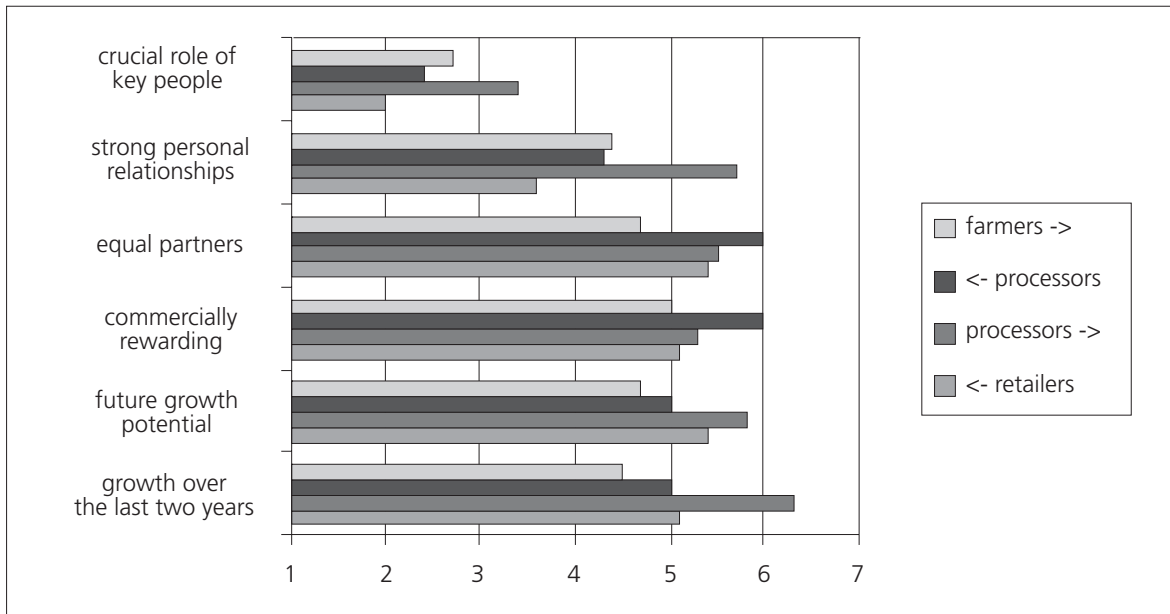


Figure 10. Nature of relationship with main buyer/supplier in the rye chain¹⁰

The quality of the relationship (i.e. trust, satisfaction and commitment) with the main buyer or supplier can be said to be rather satisfactory by all the stakeholder groups, especially the downstream processors and the retailers assessed the quality of the relationship to be very good. Trust issues with the main buyer or supplier were indicated to be in order in all the respondent groups. The downstream processors also emphasised the satisfaction with the buyer, while the commitment towards the main business partner was the lowest among the farmers. Despite the high assessment of relationship quality issues, the strength of the relationship (i.e. dependence, ability to endure conflicts and collaboration history) with the main business partner was not too good. The farmers did not indicate to be dependent on their main buyer, and the upstream processors and the retailers indicated a moderate dependence. Only the downstream processors stated to be fairly dependent on their main buyer. Also the ability to endure relationship conflicts with the main business partner was assessed to be low or moderate in all the stakeholder groups. Furthermore, all the stakeholders were relatively pleased with past collaboration experiences with their main business partners.

The respondents were asked to estimate the effect of the relationship with the main buyer or supplier on the company's performance by various measures. Among the farmers, the greatest positive effect of the main relationship was seen to be on profitability; almost 70 percent of the farmers responded 'yes'. Approximately 90 percent of the upstream processors considered that product or process quality was positively affected by the very relationship. The turnover and the market share were estimated most commonly having positively affected by the relationship with the main buyer by the downstream processors. In case of the retailers, the profitability and the customer retention were seen to enjoy the most positive effects. It must be noticed that negative effects got rather marginal references throughout the data.

4.2.4 Nature of communication with the most important partner

The communication means were estimated by the respondents according to their importance in the relationship between the business and its main buyer or supplier. The phone and face-to-face meetings were the most important communication means in all the stakeholder groups in the cereal-to-rye bread

¹⁰ Degree of agreement expressed on a 7-point Likert scale (1=strongly disagree, ..., 7=strongly agree).

chain. E-mail was regarded important in all the other groups, except among the farmers. The retailers emphasised also the importance of the ordinary mail and fax. The video conferencing and Intranet were seen as having no importance in these relationships.

The communication frequency necessary to maintain the relationship with the main buyer or supplier varied considerably between the different stakeholder groups (see Table 22). Almost 80 percent of the farmers indicated that the necessary frequency to maintain the relationship was to communicate once every 3 months or less. In the other groups approximately 70 percent of the respondents said that communication is necessary at least once a month or more often. One third of the retailers required even daily communication with the main business partner. Actual communication frequency was also stated by the respondents and some variation could be noticed: in all the groups the actual communication frequency exceeded the necessary level. Almost 45 percent of the retailers actually communicate daily with their main supplier (compared to 31.3% what they think is necessary).

Table 22. Communication frequency necessary to maintain relationship with main buyer/supplier in the rye chain (% of column total)

	Stakeholder			
	Farmers →	← Processors	Processors →	← Retailers
Daily	0.0	11.1	12.5	31.3
At least once a week	3.8	22.2	12.5	12.5
At least once a month	16.5	33.3	50.0	25.0
At least once every 3 months	36.7	11.1	6.3	12.5
Less than once every 3 months	43.0	22.2	18.8	18.8
Total n	100 (n=79)	100 (n=9)	100 (n=16)	100 (n=16)

Personal meetings with the main buyer were rather rare in case of the farmers: over 60 percent met their main buyer less than once every three months. Among the majority of the processors, personal meetings with the main business partner took place approximately at least once every three months. The retailers were the most active stakeholder group concerning the frequency of personal meetings since 37.5 percent of them met their main supplier at least once a month. All the respondent groups seemed to be fairly pleased with the communication frequency as well as the quality of communication (i.e. relevance, timeliness and reliability of the communication) between them and the main business partner.

The respondents were asked to estimate the effect of communication with the main buyer or supplier on their company's performance. The farmers considered communication to have a positive effect especially on profitability, but no effect on cost reduction, market share or innovation. The processors had generally very positive views on the relationship between communication with the main business partner and the business performance, since they considered communication to have a positive effect on profitability, turnover, cost reduction, innovation, customer retention and product or process quality. The potential effects communication has on the market share was the only statement that caused some differentiation between the processors. The majority of the upstream processors (62.5%) indicated that there is no effect between communication and market share, while the downstream processors indicated a positive connection. The retailers stated the positive connection especially between communication and profitability, turnover, market share, customer retention as well as product or process quality.

4.2.5 Factors influencing economic relationships and communication

The percentage of the respondent companies taking part in a private or non-mandatory public quality assurance system with traceability requirements varied between the different stakeholder groups, although those businesses having a quality assurance system did not make a majority in any of the stakeholder groups. The existence of a quality assurance system was a little more common among the processors (33.3% of the upstream processors and 31.3% of the downstream processors) when compared to the farmers (23.0%) and the retailers (26.7%).

The respondents were also asked to describe the nature of the market in which the business operates. All the stakeholders fully agreed with the statements that within the food branch, the above average product quality is important. There was, however, some disagreement concerning the certainty of the markets. The farmers and the processors had a neutral stance to this argument but the retailers did not generally agree with it. Furthermore, the processors and the retailers considered that the market can be characterized with a strong competition, while the majority of the farmers had a rather neutral stance on this argument.

According to the empirical data of this survey, the majority of the businesses within the rye chain were not so embedded in the local or regional economy when considering the identity of the products or the location of the suppliers (see Table 23). Although the majority of the suppliers of the respondent businesses did not generally locate nearby the businesses, the buyers, on the other hand, were more often located in the same region as the business itself. Furthermore, there was a great variety between the stakeholders considering participation in local events or donations to the local community. The majority of the downstream processors (68.8%) and the retailers (62.5%) stated their businesses to be involved in the local community, while the farmers and the upstream processors were more passive in this sense.

Table 23. Embeddedness of respondent companies in local/regional economy in the rye chain (% saying yes)

	Stakeholder			
	Farmers →	← Processors	Processors →	← Retailers
The products that our company produces/ distributes have a strong local or regional identity	10.0	44.4	40.0	25.0
The majority (>50%) of our suppliers are located in the region in which our company is located	45.0	44.4	37.5	31.3
The majority (>50%) of our buyers are located in the region in which our company is located	53.8	66.7	56.3	81.3
Our company participates in local events or donates money to the local community	22.8	11.1	68.8	62.5

There were not any major differences between the respondent groups concerning the questions of the business culture of their companies. The majority of the respondents in every group agreed that their company tries to avoid uncertainty whenever possible. Furthermore, all the respondents agreed on doing business on as long-term basis as possible, as well as remaining as independent as possible. How-

ever, the upstream processors indicated slightly higher scores on these two above-mentioned arguments when compared to the other respondent groups. The farmers and the downstream processors further agreed that the unbalanced power composition (i.e. the buyer is more powerful than the business itself) is not an obstacle for the existence of a business relationship, while the retailers had a neutral stance on this argument and the downstream processors did not agree with it.

All the respondent groups also agreed that trust, commitment and satisfaction with business partners are important elements in their business operations (see Figure 11). The farmers and the upstream processors, however, indicated the importance of commitment with the buyers/suppliers to be slightly less important than the respondents in the other stakeholder groups did. Further agreement existed between the respondent groups concerning the important role of positive past collaboration experience with their business partners as well as independence from buyers and suppliers. Likewise, there were not any significant differences between the stakeholders concerning the ability of relationships with business partners to endure conflicts, which was generally considered important. All the respondent groups rather equally appreciated the quality of information received from their business partners and the frequency of the communication, although the downstream processors indicated these to be slightly more important when compared to the other stakeholder groups.

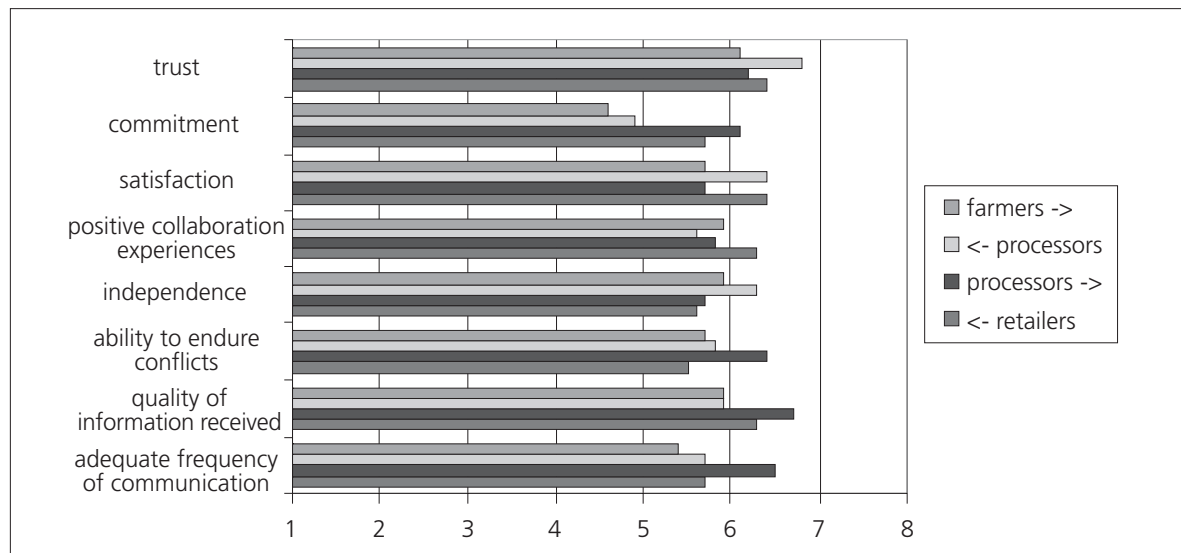


Figure 11. Importance of relationship and communication characteristics in the rye chain¹¹

4.3 Similarities and differences across the two chains

4.3.1 Relationship types chosen by the businesses

In both chains, formal bilateral contracts were stated to be the most important relationship type used with business partners (see Figure 12), though their role was slightly more highlighted within the pig meat-to-sausage chain, both in terms of the actual shares and the importance in the annual turnover. Thus, over half of the businesses in the pig meat-to-sausage chain, 51.1 percent, used formal contracts, while the same share in the cereal-to-rye bread chain was 35.5 percent. It is worth noticing that the use of spot markets was significantly more common in the cereal-to-rye bread chain when compared to the pig meat-to-sausage chain (27.3% and 1.1% respectively). In both chains, spot markets were mainly used by the farmers. Another notable difference between the two chains was in their usage of financial participation arrangements, which were more common among the businesses in the pig meat-to-sausage chain than in the cereal-to-rye bread chain (20% and 0.9% respectively).

¹¹ Degree of agreement expressed on a 7-point Likert scale (1=completely unimportant, ..., 7=very important).

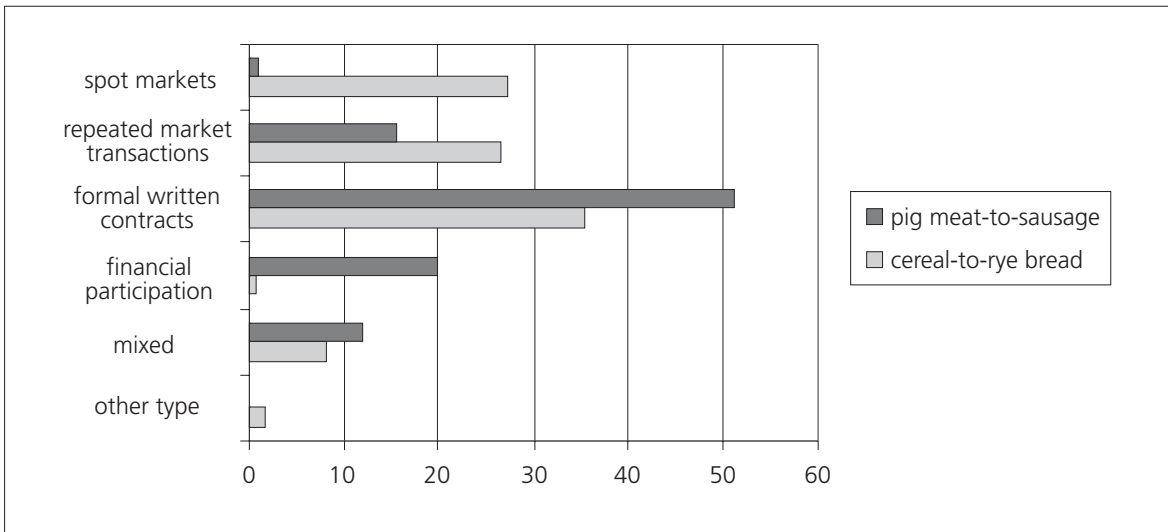


Figure 12. Use of different relationship types in pig-meat-to sausage and cereal-to-rye bread chains (average %)

The farmers in the cereal-to-rye bread chain considered themselves rather free to choose the relationship type to be used with business partners, while this was not the case with the farmers in the pig meat-to-sausage chain. Furthermore, the analysis shows that in the case of the pig meat producers the reasons for not to be able to make this decisions freely are related to a membership of a cooperative, while in the case of the rye producers it was customers' buying practices or their own low bargaining power which were seen as hindering factors. Similarly, the retailers in the cereal-to-rye bread chain stated more often to be free to choose the relationship type by themselves when compared to the retailers in the pig meat-to-sausage chain. There were no significant differences between the processors in these two chains.

The reasons for using spot markets were similar in both chains, namely flexibility and convenience. Likewise, the reasons for choosing repeated market transactions with the same buyer or supplier did not differ much between the chains, being personal relationship (the farmers), costs in search for a business partner, easiness and common business practice (the processors). It is worth mentioning that in the pig meat-to-sausage chain the retailers did not state repeated market transactions as a relationship option, while in the cereal-to-rye bread chain there were some retailers involved in this kind of business relationships. The increased competition was the main driver that was found to have an effect on making more use of repeated market transactions.

Formal written contracts were highly appreciated in both chains as practically all the reasons mentioned to favour this relationship type got high scores among the respondents in both chains. Therefore, there are not any significant differences between the chains. In general, the main drivers that had prompted the use of formal contracts were also similar in both chains, namely the increased prevalence of private or public quality assurance systems and the increased competition in the markets.

In the case of the financial participation, the two chains were rather different from each other. In the cereal-to-rye bread chain few farmers and retailers indicated to use this kind of business relationship, while in the pig meat-to-sausage chain financial participation was much more often mentioned, especially by the retailers but also by the other stakeholders. The rye farmers stated a long positive collaboration history as the main reason for using financial participation arrangements while for the pig meat producers common business practice was the most important reason. The retailers in both chains stated long collaboration history and risk sharing to be the most important reasons for choosing this kind of

business relationship. In both chains, the number of replies from the processors in this question was very small. In the pig meat-to-sausage chain the main development having prompted to making more use of financial participation arrangements was considered the increased prevalence of private and/or public quality assurance systems. Because of the low number of the respondents, the comparable information in the cereal-to-rye bread chain was not available.

The stakeholder groups in both chains were rather unanimous that their businesses have not become more vertically integrated during the last five years. Similarly, almost all of them further answered that no more vertical integration activities are to happen in the next five years either. In both chains the retailers had the most positive opinions on the past and future integration.

4.3.2 Nature of relationship with the most important business partner

The main business relations in both chains were generally speaking long-term relationships. The farmers in both chains indicated more often than the other respondent groups that their main business partner is located in the same region. It should be mentioned though, that the businesses in the cereal-to-rye bread chain had more commonly their main business partner in the same region as those operating in the pig meat-to-sausage chain. Furthermore, the relationships with the main business partners were most often based on formal written contracts in both chains. Financial participation arrangements were very rare in the cereal-to-rye bread chain, while a few businesses in the pig meat-to-sausage chain used them with their main business partner.

When the respondents were asked to evaluate the nature of the relationship with their main business partner, it can be seen that the farmers and the processors in the cereal-to-rye bread chain had overall a little more positive view on their business relations when compared to the same operators in the pig meat-to-sausage chain. They all, however, disagreed with the statement that any key people leaving the company would end the business relationship with the most important partner.

The quality of the relationship with the main buyer or supplier can be said to be satisfactory in both chains and by all the stakeholder groups (see Figure 13). The downstream processors and the retailers had a little more positive view on their main business partners than the farmers and the upstream processors. Also all the stakeholder groups in both chains indicated that they trusted their business partners and they were rather committed to their business relations. There were slight differences between the respondent groups concerning the satisfaction with the main business partner. In both chains the farmers were less satisfied when compared with the processors and the retailers. Furthermore, there were some differences between the two chains concerning the dependency on the main business partner. In the pig meat-to-sausage chain all the respondent groups, except the upstream processors, stated to be rather dependent on their main business relations, while in the cereal-to-rye bread chain only the downstream processors indicated dependency on the main business partner. The ability to endure relationship conflicts with the main business partner was assessed to be moderate or low in both chains. In both chains the majority of the respondents stated that the main business relationship had a positive effect especially on the profitability and turnover of the business.

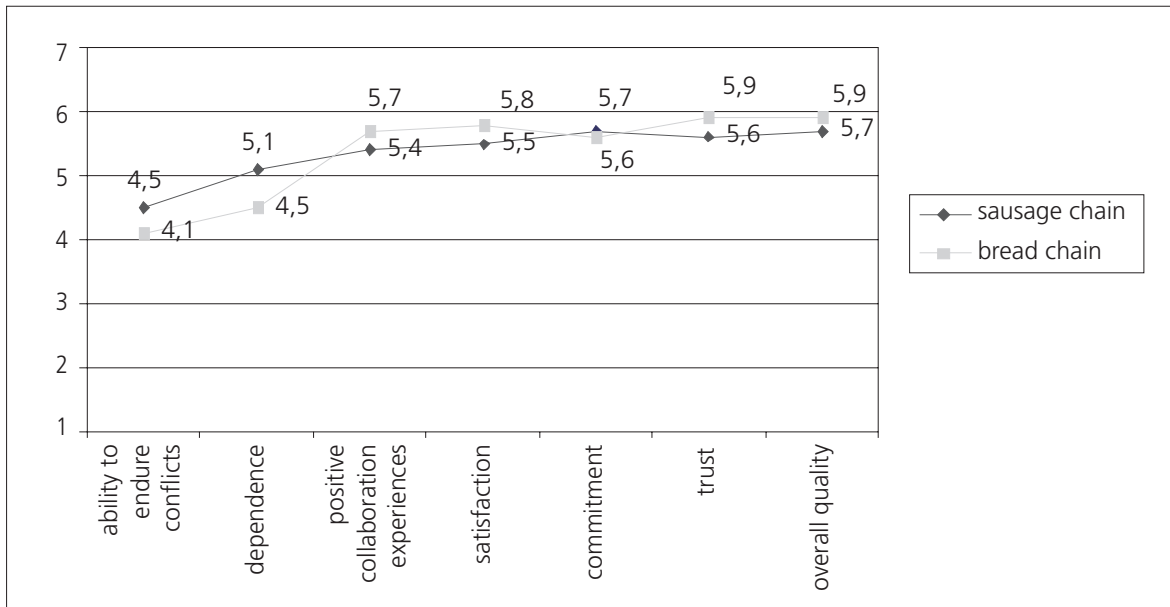


Figure 13. Comparing the quality of relationship with the main buyer/supplier in pig-meat-to sausage and cereal-to-rye bread chains¹²

4.3.3 Nature of communication with the most important business partner

The respondents were asked to estimate the communication means in relation to their importance in the main business relationship. The phone was the most important communication means in almost every stakeholder group, only the retailers and the downstream processors in the pig meat-to-sausage chain indicated e-mail and face-to-face communication as their most important communication means. Ordinary mail and fax had quite a low importance among all the respondent groups in both chains. Video conferencing and the intranet were not regarded important as communication means.

There was a considerable variation between the different stakeholder groups and between the chains in communication frequency necessary to maintain the relationship with the main business partner (see Table 24). In the pig meat-to-sausage chain, the majority of the farmers and half of the processors assessed that communication should occur at least once a week but the majority of the retailers considered that it is enough to communicate at least once every three months. The communication frequency was perceived totally the opposite way in the cereal-to-rye bread chain. The farmers indicated that the necessary frequency to maintain the relationship was to communicate once every three months, whereas the retailers required even daily communication with the business partner to maintain a relationship. The actual communication frequency exceeded the necessary level in the cereal-to-rye bread chain. In the pig meat-to-sausage chain the retailers stated their actual communication to be more frequent than they considered it is necessary, but there was also some variation in this case.

¹² Degree of agreement expressed on a 7-point Likert scale (1=very poor, ..., 7=very good).

Table 24. *Communication frequency with main buyer/supplier, necessary and actual in pig-meat-to sausage and cereal-to-rye bread chains ¹ (average %)*

	Chain	
	Sausage	Bread
Daily	3.3 (6.5)	6.7 (8.4)
At least once a week	39.1 (35.5)	7.5 (11.8)
At least once a month	29.3 (30.0)	23.3 (22.7)
At least once every 3 months	19.6 (17.2)	27.5 (26.1)
Less than once every 3 months	8.7 (13.0)	35.0 (31.1)

Personal meetings with the main business partner were quite rare in both chains. All the respondent groups in both chains were fairly satisfied with the communication frequency and information quality between them and the main buyer/supplier. Furthermore, they stated that communication with the main business partner has a positive effect especially on profitability.

4.3.4 Factors influencing economic relationships and communication

The percentage of the respondents taking part in a private or non-mandatory public quality assurance system with traceability requirements varied between the different stakeholder groups. In the pig meat-to-sausage chain the majority of the respondents did not have any quality assurance system with traceability requirements in their business and those businesses having a quality assurance system in the cereal-to-rye bread chain did not make the majority in any of the stakeholder groups.

All the respondents in both chains agreed that within the food branch, an above average product quality is important and that there exists a strong competition within the food market. There was some disagreement with the statement that the food market is very uncertain regarding the market condition and the price level. In the pig meat-to-sausage chain, the downstream processors considered that the market is actually very uncertain. The upstream processors and the retailers did not consider this to be true. The farmers in both chains had a neutral stance to this argument as well the processors in the cereal-to-rye bread chain. The retailers in the cereal-to-rye bread chain did not generally agree with this argument.

The respondents were asked to assess their embeddedness in the local/regional economy. The majority of the stakeholders in both chains disagreed with the statement that their products have a strong local or regional identity, although the majority of the retailers in the pig meat-to-sausage chain, however, argued to distribute products with a strong local identity. The participation in local events or money donations to the local community varied considerably between the stakeholders. In both chains the processors and the retailers participated in different kind of local level activities more often than the farmers.

There were not any major differences between the chains concerning the questions of the business culture. The respondents stated that they try to avoid uncertainty whenever possible and appreciated doing business on as long-term basis as possible. The independence of the business was also considered important in every respondent group in both chains. The farmers and the downstream processors in both chains agreed that the unbalanced power composition is not an obstacle for the existence of a business relationship, while the retailers in both chains had a neutral stance on this argument. The upstream processors did not agree with this argument.

Trust, commitment and satisfaction in business partners were important for the business operations in all the respondent groups. The farmers in both chains and the downstream processors in the cereal-to-rye bread chain indicated the importance of commitment with the buyers to be slightly less important than the other respondent groups did. Likewise, positive past collaboration experiences as well as the independency from buyers or suppliers were rather important for all the stakeholders in both chains. There were not any significant differences between the respondent groups concerning the ability of the relationship with business partners to endure conflicts and almost all the respondents stated that it is important for them. All the stakeholders in both chains appreciated the quality of information received from business partners and the adequate frequency of communication with buyers/suppliers was rather important for all the respondent groups, although the downstream processors in the cereal-to-rye bread chain and the retailers and the upstream processors in the pig meat-to-sausage chain indicated it to be slightly more important when compared to the other respondent groups. Figure 14 presents the above-mentioned elements in the two chains studied.

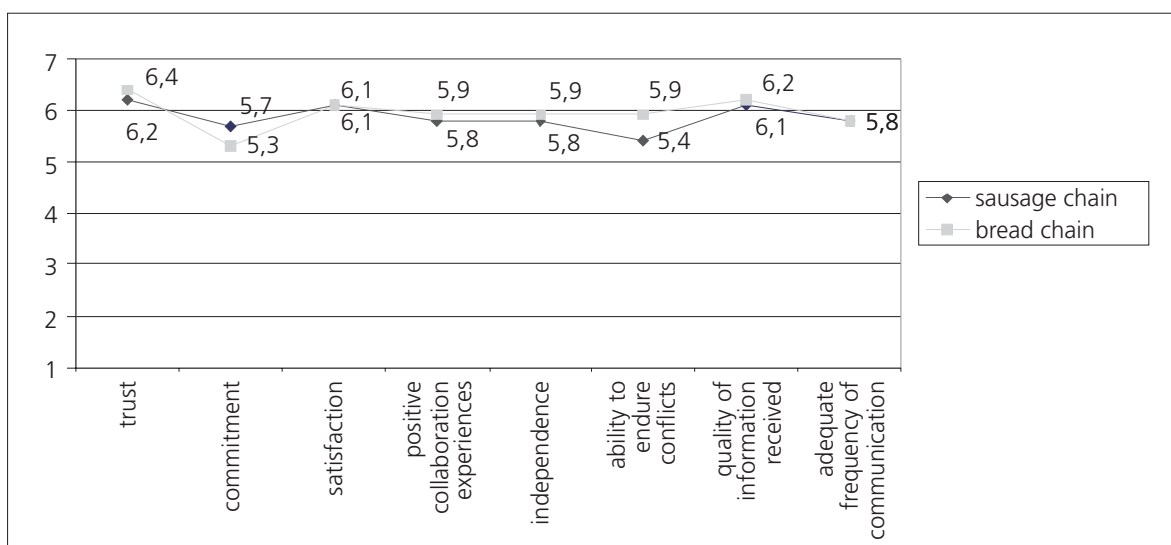


Figure 14. Importance of relationship and communication characteristics in pig-meat-to-sausage and cereal-to-rye bread chains¹³

As a summary, the main similarities between the two food chains studied in Finnish context:

- Important role of formal written contracts in business relations
- Appreciation of long-term business relations
- Communication means (phone being the most important)

The main differences:

- Importance of spot markets in the cereal-to-rye bread chain and the importance of financial participation arrangements in the pig meat-to-sausage chain in the business relations
- Level of freedom to choose the relationship type: the farmers in the cereal-to-rye bread chain considered themselves rather free to choose the relationship type to be used with business partners, while this was not the case with the farmers in the pig meat-to-sausage chain.
- Actual and appreciated communication frequency: in the pig meat-to-sausage chain the level of communication was high, whereas in the cereal-to-rye bread chain the level was considerably lower.

¹³ Degree of agreement expressed on a 7-point Likert scale (1=completely unimportant, ..., 7=very important).

5. Understanding agri-food chain relationships

In this chapter the results of the binary and multinomial logit models are presented first separately and then in relation to the hypotheses set in this research. In case of the binary logit model, the results for each relationship type are shown in a general level (i.e. including all the respondent groups) as well as for the farmers and each chain separately. Any comparisons between the different stakeholder groups could not, however, be done while the amount of the responses among the processors and the retailers was too small for a statistical analysis. After discussing the results of the binary and multinomial logit models, the results concerning the sustainability of a relationship (i.e. goodness of the relationship), tested by using a structural equation model (SEM), are presented.

5.1 Binary and multinomial logit models

In the binary logit model, the dependent variable was the relationship type (i.e. spot markets, repeated market transactions, formal written contracts or financial participation) and the control variables were the food chain (i.e. the pig meat-to-sausage chain or the cereal-to-rye bread chain) and economic activity (i.e. farmers, processors or retailers). All the factors used in the questionnaire to potentially influence the economic relationship and communication in a general level (20 variables altogether) were chosen for explanatory variables. A stepwise reduction of the variables was executed in order to find the best possible model in relation to the goodness-of-fit measures (i.e. percentage of cases correctly predicted, Pearson's Chi Square, Cox and Snell R^2 , Nagelkerke R^2 , Hosmer and Lemeshow test¹⁴).

5.1.1 Spot Markets

Because of the low number of the businesses using spot markets as a business type, a binary logit model for spot markets could not be executed in the data.

5.1.2 Repeated market transaction

Typical for repeated market transactions is a continual trade with the same business partner, often based on personal relationships between the partners. Essential for the success of this kind of business relationship is mutual trust in the continuity of the relationship and a certain ability to endure risk, since there are usually no written contracts between the parties. The binary logit model points out two significant factors, namely the willingness to avoid uncertainty and power relations (i.e. a company accepts taking part in business relationships where the business partner is more powerful), which both decrease the probability of choosing repeated market transactions (Table 25). Furthermore, the analysis showed that these factors were likewise significant when examining the farmers only (though the percentage of correct prediction was as low as 40.4%). In the case of the other stakeholders, i.e. the processors and the retailers, the number of respondents using repeated market transactions was too small for a separate analysis. Thus, any comparison between the stakeholder groups was not possible.

¹⁴Pearson's Chi Square and Hosmer and Lemeshow test: non significant value; Cox and Snell R^2 , and Nagelkerke R^2 : value between 0 and 1.

Table 25. Binary logit model results for repeated market transactions

	Repeated market transactions	
	B	Sig.
part5q27_1_risk	-0.378	0.100
part5q27_4_power	-0.191	0.091

Note: Chi-Square 0.234; Cox and Snell R² 0.130; Nagelkerke R² 0.175; Hosmer and Lemeshow 0.440; percentage correctly predicted 67.8

It is worth noticing, that when examining the two chains separately, the results were rather different compared to those presented above. In the pig meat-to-sausage chain uncertainty and past experiences did not get any significant values at all. Instead, in this chain power relations and appreciation of commitment of business partners became essential factors decreasing the probability of repeated market transactions. However, it should be mentioned that the percentage of correct prediction in this case was only 45.3 percent. In the cereal-to-rye bread chain the number of respondents was too low for executing a binary logit model.

5.1.3 Formal written contracts

When examining the factors affecting the choice of formal written contracts in the entire data, the analysis pointed out only one significant variable, namely the commitment of business partners. Thus, according to the analysis, the appreciation of commitment in business transactions increases the probability to choose formal written contracts as a relationship type (Table 26). This result can be seen to confirm the view of formal written contracts as signifiers for long-term commitment and trust (see e.g. Frankel et al. 1996). It should be noticed though, that when examining the group of the farmers, there were also several other factors influencing the choice of formal written contracts. According to the analysis, for the farmers, the avoidance of uncertainty increases the probability to choose formal written contracts, while the geographical closeness of business partners (i.e. the fact that majority of the business partners is located in the same region as the business) and the certainty of the markets seem to decrease this probability. Thus, in case of business partner locating in the same region or stable markets, the formal written contracts were not used. Further comparisons between the different stakeholders could not be done, while the amount of responses among the processors and the retailers using formal written contracts with business partners was too small for a statistical analysis.

Table 26. Binary logit model results for formal written contracts

	Formal written contracts	
	B	Sig.
All respondents*		
part5q28_2_commit	0.234	0.090
Farmers**		
part5q26_2_suppl	-0.739	0.092
part5q27_1_risk	0.593	0.030
part5q25_2_markets	-0.296	0.076

*Note: Chi-Square 0.274; Cox and Snell R² 0.070; Nagelkerke R² 0.096; Hosmer and Lemeshow 0.287; percentage correctly predicted 69.4

**Note: Chi-Square 0.212; Cox and Snell R² 0.157; Nagelkerke R² 0.214; Hosmer and Lemeshow 0.339; percentage correctly predicted 57.7

In the pig meat-to-sausage chain the appreciation of certainty and the ability to endure conflicts had positive significant effect on the willingness to choose formal written contracts, while the aim to conduct business as a long-term oriented manner as possible seemed to have an opposite effect. The latter result can be seen as contradictory to one received from the analysis made in a general level, namely the appreciation of commitment as a booster for the usage of formal written contracts. In the cereal-to-rye bread chain the number of respondents was too low to successfully execute the binary logit model.

5.1.4 Financial participation

In case of financial participation arrangements, the number of the respondents using these kinds of business relationships was too low for a statistical analysis in a general level. However, when the binary logit model was executed only for the farmers, the analysis showed that the willingness to take part in business transactions with a more powerful business partner was the significant factor affecting positively the decision of choosing financial participation as a relationship type while, surprisingly, the appreciation of trust in business relations seemed to decrease the probability for this kind of business relationship (Table 27). In the case of the other stakeholders the number of respondents using financial participation was again too small for any statistical analysis.

Table 27. Binary logit model results for financial participation for farmers.

	Financial participation	
	B	Sig.
part5q28_1_trust	-0.711	0.061
part5q27_4_power	0.594	0.067

Note: Chi-Square 0.112; Cox and Snell R² 0.115; Nagelkerke R² 0.206; Hosmer and Lemeshow 0.20; percentage correctly predicted 83.6

In the pig meat-to-sausage chain, in addition to the long-term orientation mentioned above, also the uncertain market situation increases the willingness to engage in financial participation. The number of respondents using financial participation as a relationship type in the cereal-to-rye bread chain was too small for a statistical analysis.

After examining the effects of all the factors potentially influencing the economic relationship and communication, a further analysis was done in a general level using only those explanatory variables relevant for the hypotheses set in this research (see Chapter 2). The dependent variable was the relationship type (i.e. spot markets, repeated market transactions, formal written contracts or financial participation). In the case of spot markets and formal written contracts, the results of the binary logit model cannot be presented since the chi-square test failed. The analysis revealed, however, that strong competition seems to increase the probability of choosing repeated market transactions and that long-term orientation increases the probability of choosing financial participation arrangements.

As a summary, according to the binary logit model results for the entire data, there were five significant factors affecting the choice of the relationship type, namely:

- long-term business orientation
 - positive effect on the probability of choosing financial participation
- appreciation of committed business partners
 - positive effect on the probability of choosing financial written contracts
- power relations (willingness to take part in business relationships with a more powerful partner)
 - negative effect on the probability of choosing repeated market transactions
- avoidance of uncertainty
 - negative effect on the probability of choosing repeated market transactions
- strong competition
 - positive effect on the probability of choosing repeated market transactions

The multinomial logit model for the data was run in three separate ways. First, the choice of relationship for each type was estimated by including all the explanatory variables (20 altogether) into the analysis and then reducing their number step-wise. The results of this phase indicated that the appreciation of trust in business partners seems to have a positive effect on the choice of all the relationship types examined. In the second place, the relationship types were aggregated into two types, formal and non-formal. The formal relationship category aggregated “formal written contracts” and “financial participation” and the non-formal category aggregated “spot markets” and “repeated market transactions”. This analysis showed that operating in a quality oriented markets seems to have a positive effect on the choice of both formal and non-formal relationship types. Similarly, the appreciation of commitment of business partners increases the probability of choosing both formal and non-formal relationship types. Satisfaction with business partners was also statistically significant in the case of both aggregated relationship groups, but the obtained signs were negative in both cases. Thus, according to this analysis, there were not any differences between the aggregated relationship categories. In the third place, the model was run for the aggregated relationship categories and the specific variables measuring the hypotheses set in this research (see Chapter 2). This analysis indicated that willingness to avoid uncertainty increases the probability to choose formal relationship type, i.e. either formal written contracts or financial participation arrangements.

5.2 Choice of relationship types: examining the hypotheses

The following paragraphs reflect more in detail the results of binary and multinomial logit models in relation to the hypotheses set in this research (see Chapter 2).

5.2.1 *Quality orientation and traceability/food safety assurance requirements*

H1.1 In quality-oriented markets, agribusinesses are more likely to use formal (written) contracts and financial participation arrangements rather than spot markets or repeated market transactions.

The results from the binary logit model do not support the hypothesis concerning the relation between the operation in quality oriented market and the choice of the relationship type of a business. The variable “operating in quality-oriented markets” did not score any statistically significant value among the data, i.e. whether or not the stakeholders consider the market they operate quality-oriented does not seem to affect the choice of the type of the business relationship. The results of multinomial logit analy-

sis with aggregated relationship types, on the other hand, seem to indicate that operating in high quality market increases the probability of choosing both formal and non-formal relationship types. Thus, the results of this analysis do not support the hypothesis either.

H1.2 Traceability and food safety assurance requirements raise the information and monitoring cost of occasional supply, favouring formal written contracts and financial participation arrangements.

The binary logit model constructed for the entire data did not support the hypothesis concerning the relation between the existence of a quality assurance system and the choice of the relationship type of a business. The multinomial logit model did not support the hypothesis either. According to these results, the existence of a quality assurance system did not score any significant value in the data.

5.2.2 *Competition in seller markets*

H2 The higher the degree of competition in the market in which an agri-food chain sells, the more likely agribusinesses are to use formal written contracts or financial participation arrangements rather than spot markets or repeated market transactions.

The binary logit model made for the entire data did not support the hypothesis concerning the relation between a strong competition and the choice of the relationship type of a business. In fact, the binary logit model executed indicates that a strong competition seems to increase the probability of choosing repeated market transactions instead of more formal relationship types. The multinomial logit model did not support the hypothesis either as strong competition did not score any significant value in the data.

5.2.3 *Independency*

H3 The higher the general desire for economic independency of an agribusiness' management, the more likely agribusinesses are to use spot markets or repeated market transactions rather than formal written contracts or financial participation arrangements.

The binary logit model for the entire data did not score any significant value for the independency. No significant value for independency was found in the multinomial logit model either.

5.2.4 *Risk aversion*

H4 The lower the degree of risk aversion, the more likely agri-food businesses are to use repeated markets transactions or formal written contracts rather than using spot markets or financial participation.

The binary logit model for the entire data did not support the hypothesis. For example, the results indicate that the avoidance of uncertainty seem to decrease the probability of a business using repeated market transaction. However, when the analysis was conducted for all the farmers and all the stakeholders in the pig-meat-to-sausage chain, the risk aversion indeed gained positive significant value. In the multinomial logit model, when examining the aggregated relationship categories (formal and non formal) and the specific variables measuring the hypotheses set in this research, the results indicated that

willingness to avoid uncertainty increases the probability to choose a formal relationship type, i.e. either formal written contracts or financial participation arrangements. In this case, an extra model was run in which repeated market transactions and formal written contracts were aggregated into a one dependent variable. The results of this model indeed supported the hypothesis.

5.2.5 Long-term orientation

H5 The higher the degree of long-term orientation, the more likely agribusinesses are to choose repeated market transactions or conduct financial participation arrangements than spot markets.

The analysis of binary logit model for the whole data supports the hypothesis concerning the relation between long-term orientation and the choice of the relationship type of a business up to a certain point, since the long-term orientation increases the probability of engaging in financial participation. However, the stakeholders in the pig meat-to-sausage chain rejected the hypothesis, since among them the long-term orientation decreases the probability of choosing formal written contracts. This may indicate that the long-term orientation is considered to be based on trustful business relations, and in some cases trust is indeed seen as a substitute for written contracts (Williamson 1975). In the multinomial logit model the long-term orientation did not gain statistically significant value.

5.3 Determinants of relationship sustainability – SEM estimation results

In the following paragraphs, the SEM estimation results for the data are presented in relation to the hypotheses concerning the sustainability of the relationship. First, the best performing model for the data is shown (see Figure 15). The model fits the collected data rather well, with all the goodness-of-fit measures above (below) the recommended acceptance levels (CMIN/DF= 1.2981; NFI= 0.9533; RMSEA= 0.0364). Furthermore, Table 28 and Table 29 present a numeric summary of the structural equation model.

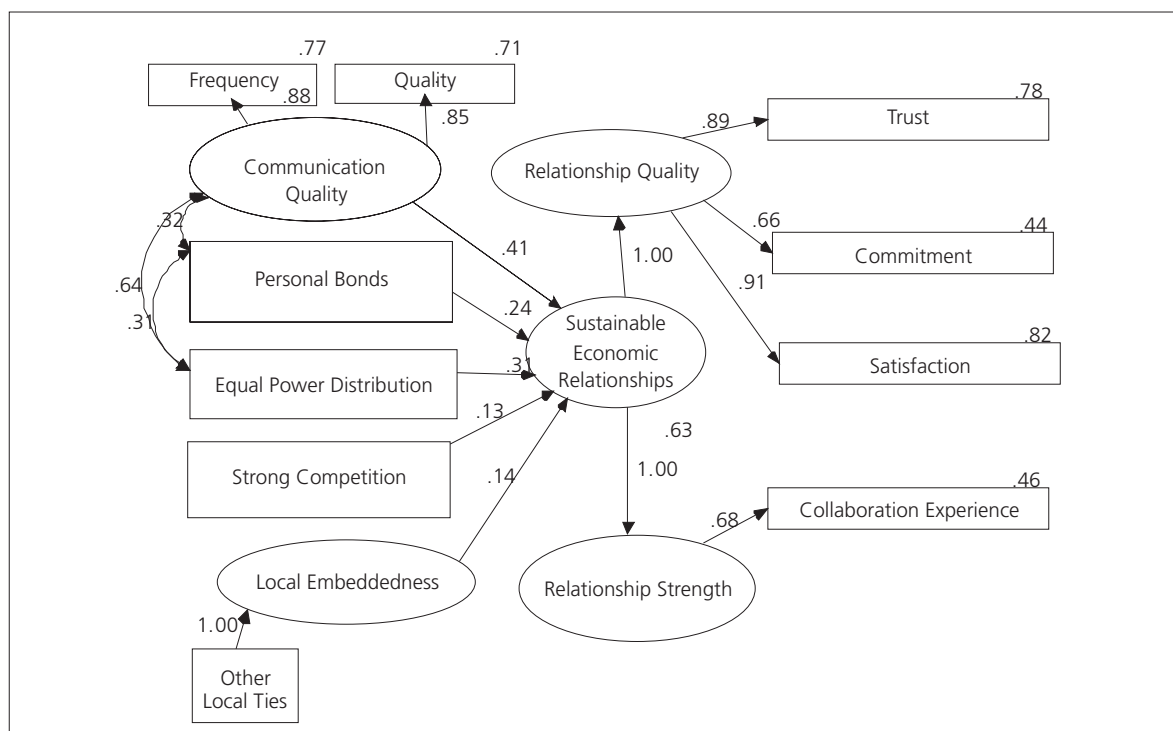


Figure 15. Determinants of sustainable economic relationships, SEM estimation results.

Table 28. Regression Weights for the SEM¹⁵

		P	Estimate
Local embeddedness	<--- Other local ties	,0047	1,0000
Sustainable economic relationships	<--- Competition	,0098	,1309
Sustainable economic relationships	<--- Communication quality	***	,4084
Sustainable economic relationships	<--- Equal power distribution	,0046	,3119
Sustainable economic relationships	<--- Local embeddedness		,1429
Sustainable economic relationships	<--- Strong personal bonds	***	,2410
Relationship quality	<--- Sustainable economic relationships		1,0000
Relationship strength	<--- Sustainable economic relationships	***	1,0000
Trust	<--- Relationship quality		,8855
Commitment	<--- Relationship quality	***	,6605
Satisfaction	<--- Relationship quality	***	,9054
Collaboration experience	<--- Relationship strength		,6812
Frequency	<--- Communication quality		,8752
Quality of information	<--- Communication quality	***	,8455

Table 29. Correlations for the SEM¹⁶

		P	Estimate
Strong personal bonds	<--> Communication quality	***	,3234
Strong personal bonds	<--> Equal power distribution	,0026	,3138
Equal power distribution	<--> Good communication	***	,6415

In the the SEM model, five variables were found to have a positive and statistically significant impact on the sustainable economic relationship construct: communication quality, personal bonds, equal power distribution, local embeddedness and competition. According to the SEM model presented above, the most important contributor to the sustainability of the business relationships is communication quality with a standardised regression weight of .41. Communication was followed by equal power distribution (.31), existence of personal bonds (.24), local embeddedness of a farmer/business (.14) and competition (.13). The former three determinants are further positively and statistically significantly correlated with each other, suggesting that the existence of personal bonds contributes to communication quality, that equal power distribution contributes to the development of personal bonds and to communication quality, and vice versa. Overall, 63 percent of the variance in the observed sustainable economic relationships construct can be explained by the five identified determinants.

These results described above support the hypotheses H6, H9, H10 and H8 set in this research. Thus, the results indicate that both communication (H6), the existence of personal bonds (H9) and equal power distribution between business partners (H10) positively affect the sustainability of economic relation-

¹⁵ *** means that the prediction is significantly different from zero at the 0.001 level.

¹⁶ *** means that the prediction is significantly different from zero at the 0.001 level.

ships. Furthermore, the argument concerning the embeddedness (H8), i.e. the higher of embeddedness in the local economy in which an agribusiness operates, the higher the sustainability of economic relationships, is supported by the SEM analysis. Likewise, the analysis indicates that competition has also a significant influence on the sustainability of the relationships. However, this influence proved to be positive, which means that the higher the competition, the higher the sustainability of economic relationship and therefore hypothesis H12 is not supported by the analysis. Hypothesis H7, i.e. economic relationships which are based on repeated market transactions and financial participation arrangements are more sustainable than spot market relationships or relationships building upon contracts, did not get any significant value and therefore is not supported in the data.

6. Conclusions

In this report, the results of the data analysis of two selected food chains, namely the pig meat-to-sausage chain and the cereal-to-rye bread chain have been presented. The aim of the report was to describe the role of relationship type and communication in a food chain as well as to highlight the similarities and the differences between the two chains studied. Furthermore, it focused on examining those factors influencing the choice of a relationship type and the sustainability of a business relationship. The results were based on a quantitative analysis of 224 food businesses. The majority of these businesses were rather small, which reflects well the structure of the national economy in Finland, where small businesses account over 98 percent of all the private businesses.

According to this study, formal written contracts are the most often used relationship type among the businesses in the pig meat-to-sausage and the cereal-to-rye bread chains. Although for many businesses written contracts are a common business practice, the essential role of the contracts was still due to the security they provide in relation to the demand/supply and quality issues. In the case of the relationship types chosen, the main difference between the two chains emerged especially with the prevalence of spot markets and financial participation arrangements. The usage of spot markets was significantly more common in the cereal-to-rye bread chain when compared to the pig meat-to-sausage chain, while, on the other hand, financial participation arrangements were much more common among the businesses in the pig meat chain than in the rye chain. Furthermore, the analysis showed that most of the businesses in the pig meat chain claimed not to be free to choose the relationship type they use but especially a membership in a co-operative and practices of a business partner were considered to limit their freedom to choose. This result indicates that the level of integration especially between the pig meat producers and the upstream processors is much higher when compared to the relationship between the rye producers and their upstream business partners. It should be mentioned though that according to the majority of the surveyed businesses, there has not been increase in the vertical integration activities during the past five years. Likewise, the businesses did not expect any integration to take place in the near future either.

The business relations with the main business partners were usually long-term relationships based on formal written contracts. Typical for the main business relationships was also that they were not based on the existence of the key persons only but the relationship would remain even if the key people left the business. The quality of these relationships seems to be good, i.e. trust, commitment and satisfaction between the business and its main partners were all assessed high. When examining the different stakeholders separately, the farmers were generally speaking less satisfied with their main business relations when compared to the processors and the retailers. In both chains the majority of the respondents stated, however, that the main business relationship had a positive effect especially on the profitability and turnover of the business.

The majority of the respondents did not have any certificated quality assurance system in use. This does not mean that quality issues are not considered important among the respondents. On the contrary, the respondents were rather unanimous concerning the importance of above average product quality within the food branch. The appreciation of high quality did not, however, have any effect on respondents' choice of the relationship type. This may indicate that in the food industry, especially given the sensitive nature of produce, quality issues are considered extremely important in all kinds of relationship types.

Although the statistical analysis of the determinants of the preferred relationship types did not deliver informative results in all cases (mostly due to the limited sample sizes), adequate structural equation model

could, however, be specified and tested. The following paragraphs present more in detail those factors being essential either for the choice of relationship type or the sustainability of the economic business relationship, i.e. support the hypotheses set in this research. These factors were communication, strong competition, risk avoidance, personal bonds, equal power distribution and local embeddedness.

The most common means of communication among the food businesses were the phone, face-to-face communication and e-mail. The respondents claimed to be rather satisfied with the communication frequency and quality with their main business partners; though in most cases the actual frequency of communication was, in fact, considered to exceed the necessary level. Communication has also an essential positive effect on the sustainability of business relations, like the SEM analysis indicated.

The respondents also agreed on the competitive nature of the food industry. The SEM analysis further indicated that competition has a significant influence on the sustainability of the business relationships in a positive way. In other words, a harsh and increased competition seems to increase the sustainability of a relationship. This result is, in fact, supported by many business ethicists, who claim that in order to compete successfully, a business needs to co-operate with its partners (see e.g. Solomon 1992). Co-operation, including usually mutual interests, commitment and trust between business partners, is an important element of relationship sustainability. The binary logit model did not, however, support the hypothesis concerning the relation between strong competition and the choice of formal relationship type.

There was a slight disagreement among the responded businesses concerning the certainty of the industry, though the majority of the businesses did not consider the industry as uncertain. A great majority of them, however, agreed that they try to avoid uncertainty as much as possible. This avoidance of uncertainty and risk has, according to the multinomial logit model, a certain effect on the relationship type chosen, i.e. the willingness to avoid uncertainty increases the probability to choose stable relationships, like repeated market transactions and formal written contracts, but not necessary those, which require high financial commitment (like financial participation arrangements).

The argument concerning the personal nature of the main business relationship brought about some heterogeneity among the respondents. While most of the processors either agreed with the argument or had a neutral stance towards it, the opinions of the farmers and the retailers differed between the chains. In the pig meat chain the farmers did not think that their main business relation is based on strong personal bonds, while the retailers had an opposite opinion. In the rye bread chain, the farmers had a rather neutral stance towards the argument, while the retailers disagreed with it. All the respondents considered though that their main business relationships are not dependent on the existence of certain key people. Despite this, the SEM analysis indicates that personal bonds still have an important effect on the sustainability of the business relationships.

According to the SEM analysis, the sustainability of a business relationship is also affected by the power distribution between the business partners. The processors and the retailers considered that the power between them and their business partners was in fact rather equally distributed. It should be mentioned though, that the farmers did not have as positive view of the equal power distribution as did the two other stakeholder groups. They, however, generally considered that an unbalanced power composition is not an obstacle to the existence of a business relationship. In case of local embeddedness, the businesses did not indicate to be that embedded, especially considering a strong regional or local identity of products. However, the SEM analysis shows that taking part in local activities outside business operations positively affects the sustainability of economic relationships.

The main findings of the report show that although there are some differences between the two food chains examined here, especially in relation to the prevalence of spot markets and financial participation arrangements, the food businesses still share rather similar views concerning communication in the chain as well as those factors affecting communication. Furthermore, the definition of a successful business relationship is also rather similar in both chains, since despite the relationship types the businesses are using, they still highly value trust and good quality of information received from their partners as important basis of the relationships. Indeed, in the data trust, as well as risk and uncertainty which are inherent elements of trust (see e.g. Mayer et al. 1995), proved to be essential features for the choice of the relationship type. From a rational perspective, trust can be defined as an estimation of the likelihood of future cooperation (Williamson 1993). According to this perspective, a decrease in trust results in unwillingness to take any risks in business relationships, which can lead to the greater demand of protections, in a sense of formal relationship types, against the possible opportunistic business behaviour. It should be mentioned though, that written contracts should not always be understood simply as being antithetical to trust, but they are often a mere (bookkeeping) formality with little or no practical relevance as a governance mechanism as Kautonen et al. (2003) point out. In any case, the existence of trust seems crucial for the sustainability of business relationships and deserves to be further examined.

References

- Aalto-Setälä, V. (2002): The effect of concentration and market power on food prices: Evidence from Finland. *Journal of Retailing*, 78(3), pp. 207-216
- Anton, J. and Jones, D. (2002): Parlons graphiques – How much agricultural policy reform in OECD countries?, *EuroChoices*, (1)3, pp. 24-25.
- Bruhn, C.M. (1999): Public communication on the food chain, the foundation of global progress. *Proceedings of the 1999 Brighton Crop Protection Conference*. Brighton: British Crop Protection Council Publications, November.
- Chartier, J. and Gabler, S. (2001): Risk communication and government. Canadian Food Inspection Agency, Public and Regulatory Branch.
- Claro D. P., Hagelaar, G. and Omta, S.W.F. (2004): How to manage a relationship and be successful: A study of the network and buyer-supplier relationship in the Dutch potted flower and plant industry. In Bremmers, H.J. Omta, S.W.F., Trienekens, J.H. and Wubben, E.F.M. (eds.), *Dynamics in chains and networks: Proceedings of the 5th International Conference on Chain and Network Management in Agribusiness and the Food Industry*, Wageningen, pp. 203-210.
- Commins, P. (2001): Food supply chains and SMEs: A theoretical framework. Report 4 for the EU 5th Framework, Brussels.
- Cooper, M. C. and Ellram, L. M (1993): Characteristics of supply chain management and the implications for purchasing and logistics strategy. *The International Journal of Logistics Management*, (4)2, pp. 13-22.
- Dyer, J.H. and Singh, H. (1998): The relational view: co-operative strategy and sources of inter-organisational competitive advantage. *Academy of Management Review*, 23, pp. 660-79.
- Elintarvikeyritykset (2005): [Food companies], *Ruoka-Suomi [bulletin]* 3/2005, pp. 27.
- Fearne, A., Hughes, D. and Duffy, R. (2001): Concepts of collaboration: supply chain management in a global food industry, in: Eastham, J.F., Sharples, L. and Ball, S.D. (eds.), *Food supply chain management: Issues for the hospitality and retail sectors*, Oxford, pp. 55-89.
- Finfood (2005): Finfoodin uutiset tänään 14.12.2005. [Finnish Food Information Service]. Bulletin 14.12.2005. From www.finfood.fi.
- Finfood (2005b): Agrifacts. [Finnish Food Information Service]. www.finfood.fi. (26.8.2005)
- FOODCOMM (2006a): Report 1: Theoretical framework. (Key factors influencing economic relationships and communication in European Food Chains). An executive summary available at: <http://www.foodcomm-eu.net/>.
- FOODCOMM (2006b): Report 2: Review of food chain systems. (Key factors influencing economic relationships and communication in European Food Chains). An executive summary available at: <http://www.foodcomm-eu.net/>.
- Frankel, R.J., Whipple, J.S. and Frayer, D.J. (1996): Formal versus informal contracts: Achieving alliance success. *International Journal of Physical Distribution & Logistics Management*, 26(3), pp. 47-63.
- Greenberg, D. and Graham, M. (2000): Improving communication about new food technologies. Issues in science and technology. University of Texas, Dallas, pp. 42-48. www.aas.org/spp/rd/ch17.pdf
- Grönroos, A. (2005): Leipomoteollisuus [Bakery Industry]. Toimialaraportti [Industry report], Publications of Ministry of Trade and Industry and Employment and Economic Development Centre 4/2005.
-

-
- Heinimäki, H. (2006): Kaupan toimintaympäristö [Operational environment of retail trade]. Helsinki, WSOY Oppimateriaalit Oy.
- Kautonen, T. and Welter, F. (2003): Trust in small business networks - Empirical evidence from East and West Germany. Paper presented in 19th EGOS Colloquium in Copenhagen 3-5 July 2003.
- Katz, J. P. and Boland, M. (2000): A new value-added strategy for the US beef industry: The case of US Premium Beef Ltd. *Supply Chain Management: An International Journal*, 5(2), pp. 99-110.
- Lehtonen, H. and Pyykkönen, P. (2005): Maatalouden rakennekehitysnäkymät vuoteen 2013 [Structural change in Finnish agriculture up to 2013. MTT:n selvityksiä 100. Maa- ja elintarviketalouden tutkimuskeskus [Agrifood Research Finland, Economic Research (MTTL)]. 47.
- Leipätiedotus ry (2006): Myllyn tuotanto [Mill production]. <http://www.leipätiedotus.fi/default.aspx?path=4;175;205>. (26.6.2006)
- Lihakeskusliitto (2005): Suomen liha-alan ABC [The ABC of Finnish meat industry]. [The Finnish Meat Trade Association] (LKL). Press release 18.10.2005. From <http://www.lihakeskusliitto.fi>. (8.12.2005)
- Mayer, R. C., Davis, J. H. and Schoorman, F. D. (1995): An integrative model of organizational trust. *The Academy of Management Review*, 20(3), pp. 709 – 734.
- Miller, M. (2001): Making the communication connection. *Pork Magazine*, 1st July. www.vancepublishing.com/FSI/articles/0207/0207comgap.htm
- Mitra, J. (2000): Making connections: innovation and collective learning in small businesses. *Education + Training*, 42, pp. 228-237.
- Niemi, J. and Ahlstedt, J. (2005): Finnish agriculture and rural industries 2005 - Ten years in the European Union. In Niemi, J. and Ahlstedt, J. (eds.), Agrifood Research Finland. Economic Research (MTTL), Publications 105a.
- Niemi, J. and Ahlstedt, J. (2006): Finnish Agriculture and Rural Industries 2006. Niemi, J. and Ahlstedt, J. (eds.), Agrifood Research Finland. Economic Research (MTTL), Publications 106a.
- Nordic Food Markets - a taste for competition (2005). Working Group of Nordic Competition Authorities.. http://www.kilpailuvirasto.fi/tiedostot/Nordic_Food_Markets.pdf (19.12.2005).
- Overboom, M.A. (2000): Analysing governance structures of international supply chains, in: Trienekens, J.H., Zuurbier, P.J.P. (eds.) (2000). *Chain Management in Agribusiness and the Food Industry*, Proceedings of the Forth International Conference, Wageningen.
- Palmer, C. M. (1996): Practical Problems in Building Effective Supply Chain Alliances, 2nd International Conference on Chain Management in Agri- and Food Business, Wageningen, Wageningen Agricultural University.
- Pardo, C. (1999): Key account management in the business-to-business field: A French overview. *Journal of Business & Industrial Marketing*, 14(4), pp. 276-290.
- Päivittäistavarakauppa ry (2006): Daily consumers goods trade 2006 - 2007. Finnish Food Marketing Association and Developing Trade. <http://www.pty.fi/index2.html>.
- Solomon, Robert C. (1992): Corporate roles, personal virtues: an Aristotelean approach to business ethics, *Business Ethics Quarterly*, 2(3), pp. 317-339.
- TIKE (2003): Maatilatilastollinen vuosikirja 2003 [Yearbook of Farm Statistics]. Official Statistics of Finland. Helsinki, Maa- ja metsätalousministeriön tietopalvelukeskus TIKE [Information Centre of the Ministry of Agriculture and Forestry TIKE].
-

TIKE. (2005). Tilamäärät 1.4.2005. Sika- ja ruistilat Suomessa [Pig and rye farms in Finland]. Tietopalvelu. Maa- ja metsätalousministeriön tietopalvelukeskus [Information Centre of the Ministry of Agriculture and Forestry]. Statistics.

Tilastokeskus (2005). Statistical Yearbook of Finland 2005. Official Statistics of Finland. Tilastokeskus [Statistics Finland]. 100 (new series).

Tilastokeskus. (2006). Vähittäiskaupat ja liha-alan ja vilja-alan jalostajat Suomessa [Retailers and meat and corn processors in Finland]. Tilastokeskus [Statistics Finland]. Statistics.

Tulli (2005): Ulkomaankauppa 2004. Taskutilasto [Foreign Trade 2004. Finnish Trade in Figures]. Tullihallituksen tilastojulkaisu [National Board of Customs]. http://www.tulli.fi/fi/05_Ulkomaankauppatilastot/01_Tilastokatsaukset/pdf/2005/tasku2004.pdf. 22.11.2005

Välimäki, K. (2005): Teurastus- ja lihanjalostusteollisuus [Slaughtering and meat industry]. Toimialaraportti [Industry report], publications of Ministry of Trade and Industry and Employment and Economic Development Centre 5/2005.

Williamson, O. (1975): Markets and hierarchies: Analysis and anti-trust Implications. New York, The Free Press.

Williamson, O. (1993): Calculativeness, trust, and economic organization. *Journal of Law and Economics*, 34, pp. 453-502.



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