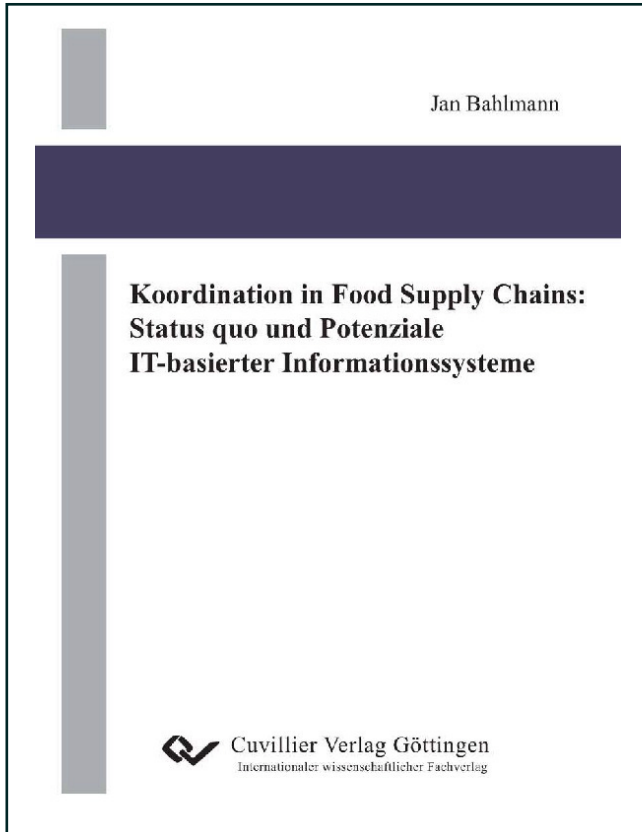




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# **Koordination in Food Supply Chains: Status quo und Potenziale IT-basierter Informationssysteme**



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## **1 Trust within supply chains**

Due to increasing competition, relationships between processors and farmers are often fraught with conflict. The pork industry in Germany is traditionally characterised by arm's length transactions (SPILLER et al. 2005). The highly competitive environment of the supply chain causes a certain level of distrust, which leads to distinct inefficiencies, e.g. the repeated failures to establish Salmonella monitoring. Practitioners frequently complain of a high level of distrust in their processors (SPILLER et al. 2005). Chain coordination executed by processors is increasingly being contested by independent farmer initiatives such as the "Bund Deutscher Milchviehhalter" or "Interessengemeinschaft der Schweinehalter Deutschlands". It seems that traditional organizational forms such as cooperatives are no longer sufficient to guarantee the coordination of the value chain.

Against this background, the following paper takes up the debate on suitable governance forms and tries to find an empirical answer. Primarily, trust management is seen as a complement to governance mechanisms such as market, contracts, and vertical integration. In the literature, there are many conceptual reflections on this, but only little empirical work.

Therefore, a model to measure trust and determinants of trust between pig farmers and slaughterhouses was developed and tested by a large-scale survey. Unique to our approach is the comparison of results on the enterprise and sector level, revealing significant differences. This contribution provides scientific evidence against making too broad generalizations of sector-level data for practice-oriented application and recommendations.

## **2 Theoretical framework**

### **2.1 Governance-mechanisms in the supply chain**

The appropriateness of governance systems in supply chain management is analysed from different perspectives of economic theory (SCHULZE et al. 2006). Outstanding importance is accorded to the transaction cost theory which in terms of the market-hierarchy paradigm distinguishes market, contract and hierarchy as alternative governance forms (WILLIAMSON 1985). However, the concentration on contracts and

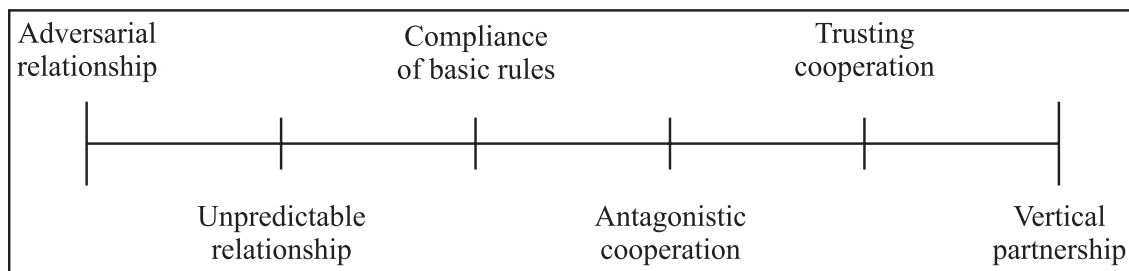
vertical integration in transaction cost theory is often criticized in the literature for a number of reasons (NOOTEBOOM 2004). One major drawback of the theory is that matters of trust are neglected. Contracts stay unavoidably incomplete. However, given a high degree of uncertainty and high specific investments, the resulting risk cannot be reduced solely through ties of ownership-rights or strict contracts but requires also trust (GRANOVETTER 1973, BRADACH and ECCLES 1989). Another weakness of the transaction cost theory is that the rather apodictically set opportunism premise, which generally recommends distrust strategies, cannot explicitly be observed in practice. Typically, managers know some companies they can rely on. In addition, modern economical research points to many trade-offs between the dimension of control and the intrinsic motivation of a business partner (FREY and JEGEN 2001). Therefore, a relationship based on distrust, contractual ties and control, which the transaction cost theory implies in its concept of the human being, might paradoxically force opportunism as well as an absence of intrinsic motivation to cooperate (negative self fulfilling prophecy). As NOOTEBOOM (2004) puts it, “the expression of distrust, based on the assumption of opportunism, is likely to destroy the basis of trust as the relation unfolds”.

Given a number of failed attempts to prove a substitutional relationship between trust and control (WOOLTHUIS et al. 2002) in newer economic research, there are several contributions which emphasise the complementary role of trust to safeguard business relationships. Trust reduces transaction costs (DONEY and CANON 1997, GALIZZI and VENTURINI 1999), supports commitment as well as cooperative behaviour (BÜSSING 2000), and establishes a safe environment for critical information transfer, services, goods and resources (PELZMANN 2005). Trust functions as a self-strengthening tie or a bold concession and can be a reasonable complement to contracts or vertical integration (POPPO and ZENGER 2002: 707). There are also several empirical hints from agri-business research that the establishment of trust in business relationships provides competitive potential (BATT and REXHA 1999, CLARE et al. 2005).

In the following it is argued that trust is not a dichotomous variable. Figure 1 shows a continuum of business relationships characterized by different levels of trust and conflict (SPILLER et al. 2005). At one end of the continuum there are adverse relationships which are characterized by a high level of conflict and opportunism. Each party

tries to assert its own interests, if necessary by abusing power imbalances. Whilst in this case, parties are sure that their counterpart will exploit them whenever possible, there may also be business relationships in which the partner's behaviour cannot be anticipated at all. In this uncertain and incalculable business environment (not knowing whether the other is cheating or not) a high level of mistrust leads to cautious behaviour. The third step is that at least compliance to basic rules is assured if sector-specific standards or a general understanding of exchange behaviour is shared by all industry members. An antagonistic cooperation ("Co-Opetition", BRANDENBURGER and NALEBUFF 1996) describes relationships where there is some goal compatibility whilst in other parts the relationship is strongly adversarial. In contrast to an unpredictable relationship, both parties have the aim of working together for a common goal despite great differences of interests in other fields (e.g., prices and distribution of profits). A trusting cooperation is characterized by a strong confidence that one will not be exploited by a partner, because he is interested in continuing the relationship. A vertical partnership is at the other end of the continuum. This type of relationship is characterized by strong interpersonal bonds, mutual goals and perhaps even friendships between the partners.

Figure 1: Continuum of trust in business relationships



## 2.2 Determinants of trust

In order to shed light on how trust between farmers and processors is developed in the pork chain, a second aim of this contribution is the measurement of trust determinants, i.e. those factors which can lead to a higher level of trust. It is assumed that these insights may help guide trust management in enterprises. Equivalent reports on the determinants of trust can be found in research about channel marketing (YOUNG and WILKINSON 1989) and later also more generally in the relationship marketing literature (WEITZ and JAP 1995). Credibility and benevolence are discussed as dimensions or

determinants of trust in different studies (GANESAN 1994, KUMAR et al. 1995, GANESAN and HESS 1997). Recently identified factors influencing trust formation between business partners are shared values (DWYER et al. 1987, ANDERSON and WEITZ 1989, MORGAN and HUNT 1994), perceived productivity of the partner, communication quality and quantity (MATANDA and SCHRODER 2004) as well as friendship between parties (WILSON 1995). Also the partner's overall reputation can foster trust (DASGUPTA 1988, BARTELT 2002), while one-sided dependency is found to hinder the development of trust (ANDERSON and WEITZ 1989, STERN and REVE 1980). Finally, the importance of power and trust within relationships also has been investigated (for an overview, see IRELAND and WEBB 2007). Further hints on potential trust determinants are provided by research on satisfaction and relationship quality, where constructs such as opportunism, power asymmetries and structural bonds were introduced (DWYER et al. 1987, ANDERSON and NARUS 1990, JÄRVELIN 2001).

There is also a huge amount of empirical research from different sectors of the agribusiness. Studies by HANSEN et al. (2002) and CLARE et al. (2005) target the general exploration of trust within cooperatives, and between farmers, regional cattle dealers and slaughterhouses, respectively. Besides trust, CLARE et al. (2005) also inquire into parameters, such as power symmetry, reciprocal dependence etc. which SPEKMAN et al. (2000) identified as important success metrics in an earlier survey.

BATT (2003) reveals determinants of trust between fresh produce growers and market agents buying the products on behalf of retailers. The study is based on a survey of 196 Australian farmers. The trust dimension, as the dependent variable, is measured in this study through perceived honesty, credibility of information, and reliability of promise, which are, from our viewpoint, not components but determinants of trust. The same holds for the factor "relational satisfaction" which BATT finds to be the most important factor in the development of trust between Australian growers of fresh produce and their buyers. It comprises constructs which in our opinion have to be distinguished from satisfaction, as perceived fairness of the buyer, complaint management, and conflict. Other influencing factors in his sample are goal compatibility, relational investments, power and opportunism. Even if the duration of the relationship does not have an impact on supplier trust in BATT'S survey, this determinant is often discussed as important in other studies (GANESAN 1994, BATT and REXHA 2000).

JAMES and SYKUTA (2006) analyse farmers' trust in cooperatives and investor-owned firms for the soybean and corn market. They confirm their hypothesis of a higher level of trust towards cooperatives. Furthermore, farmers perceive cooperatives to be more honest and to have a higher competence.

All of these considerations have been integrated into the research model depicted in Figure 2. Some central constructs are similar to the results of BATT (2003). However, in contrast to BATT, who subsumed many items under the term relational satisfaction, we first developed a strongly disaggregated model in order to identify and distinguish determinants of trust sharply. Hence, our basic measurement model comprises the aspects of goal compatibility, communication, reliability, fairness, reputation and perceived management responsibility, friendship between parties, credibility of information, complaint management and duration of the relationship, which are all assumed to have a positive influence on trust in business relationships.

Factors which are assumed to negatively influence trust are opportunism, power asymmetries and structural bonds. Opportunism in our study is measured through sector specific problems such as occasionally dubious grading processes and a lack of price transparency in the market, which have been repeatedly reported by practitioners and which cause conflicts and lead farmers to question the credibility of their buyers (SPILLER et al. 2005: 287). Structural bonds includes the perception of marketing alternatives as well as one-sided dependency and reciprocal dependence.

Specific investments as analysed by BATT (2003) have no relevance in the sector we refer to in this paper, which is mainly characterised by commodity production.