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The Role and Success Factors of Livestock Trading Cooperatives: Lessons from German Pork Production

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Abstract

In recent years the organization of meat supply chains has been among the most animatedly discussed topics in agriculture and the food industry. Many authors hypothesize that contracts and vertical integration are paramount for the future competitiveness of meat production. But most arguments do not take into account the complexity of today's meat supply chains and the pivotal role private and cooperative livestock traders still play in many countries. In this paper we analyze the role and success factors of livestock trading cooperatives in modern meat supply chains. The results show that livestock trading cooperatives are most successful when their service spectrum meets members' needs and offers an added value to farmers. From a theoretical perspective, the results indicate that the idea of searching for "one best way of organizing" food supply chains might be misguided and current writing on this topic might be too deterministic.

Keywords: Cooperatives, Equifinality, Livestock trading, Meat industry, Success factors.

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Introduction

Today's food supply chains are complex international networks characterized by a vast variety of organizational and managerial aspects (Bijman et al, 2006; Ondersteijn et al, 2006). The vertical coordination of meat supply chains and the way relationships between producers and processors are organized are among the most animatedly discussed research topics. Many authors argue that the way meat supply chains are organized strongly determines their future competitiveness (Windhorst, 2004). In many countries, including the United States, meat supply chains have been undergoing changes resulting in stricter vertical coordination (Martinez, 2002a, 2002b; MacDonald et al, 2004).

Transaction cost economics provides the most widely used theoretical framework for analyzing the vertical organization of meat supply chains (Schulze, Spiller and Theuvsen, 2006a). Two key variables in transaction cost theory that characterize the situation under which transactions take place are the degree of asset specificity and the amount of uncertainty in a market (Klein, Crawford and Alchian, 1978; Williamson, 1985). In the comparative analysis of discrete structural alternatives proposed by Williamson (1991), organizational alternatives are evaluated according to their ability to cope with these contingency factors due to their adaptive capacity either through autonomous or cooperative decision making, incentive intensity and level of administrative control.

Due to the dominant role of transaction cost theory in the discussion about the vertical coordination of meat supply chains, most papers refer to the distinction between spot-market transactions, hybrid organizational forms and hierarchy proposed by Williamson (1985, 1991). Peterson, Wysocki and Harsh (2001), for instance, describe specification contracts, relation-based alliances and equity-based alliances as typical organizational alternatives to spot-market relationships in meat supply chains. Similarly, Spiller et al (2005) distinguish between spot markets, informal long-term relationships, marketing and production contracts, contract farming and vertical integration (Figure 1).

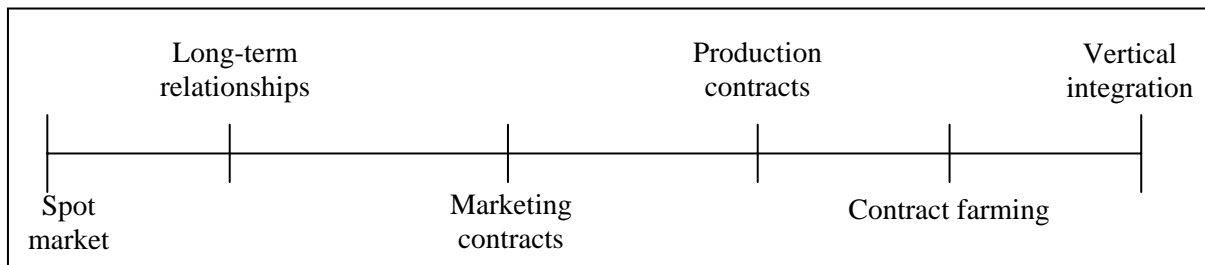


Figure 1: Vertical Coordination of Meat Supply Chains (Schulze, Spiller and Theuvsen, 2006c, p. 374)

More recently, ideas stemming from the relationship marketing literature (Morgan and Hunt, 1994; Wilson and Jantrania, 1994; Ballantyne, Christopher and Payne, 2003) have been introduced into the analysis of food supply chains. So, besides the structural aspects stressed by transaction cost economics, behavioral determinants of efficient governance structures such as trust (Hansen, Morrow and Batista, 2002; Batt, 2003; Fritz and Fischer, 2007), preferences (Key, 2005; Key and MacDonald, 2006) and commitment (Spiller et al, 2005) have also been taken into account in more recent studies. Trust, for instance, is expected to have a positive impact on relationship performance through reducing behavioral uncertainty and, thus, transaction costs (Galizzi and Venturini, 1999), supporting commitment and improving cooperation and communication (Morgan and Hunt, 1994; Batt and Rexha, 1999). Therefore, trust management is strongly recommended in food supply chains for gaining and sustaining competitive advantage (Spiller et al, 2005; Schulze, Spiller and Theuvsen, 2006c; Schulze, Spiller and Theuvsen, 2007).

Although the discussions inspired by transaction cost economics and other theoretical frameworks shed some new light on the question of how to efficiently organize supply chains, they do not fully take into account the complexity of today's meat industries. In most cases, the discussion about how farmers should organize their business relationships with abattoirs does not consider the pivotal role private and cooperative livestock traders still play in agribusiness value chains in many countries. So, in fact, in many countries, such as Germany, the marketing of slaughter animals is organized as a two-tier system, with livestock traders mediating the business relationships between producers and processors, whereas most of the existing literature discusses the efficient design of single-tier livestock marketing systems characterized by direct business relationships between farmers and abattoirs. Therefore, one important alternative for organizing meat supply chains has not received much attention; so far the future role and the success factors of agricultural trading cooperatives have rarely been investigated and are still unclear.

Although in many Western countries cooperatives have played pivotal roles in food supply chains for more than a century, structural changes in agriculture resulting in bigger farms and making single-tier systems more efficient as well as the ongoing discussion about the competitive advantages of stricter vertically coordinated meat supply chains (den Ouden et al, 1996; Lawrence et al, 1997, 2001) contribute to the weakening of the market position of livestock trading cooperatives. Decreasing numbers of members and sales volumes and a growing number of mergers between livestock trading cooperatives are indicators of the economic pressures these organizations are currently facing. They compete heavily with private traders, direct marketing relationships between farmers and processors and vertically integrated production systems set up by processors.

Objective and research questions

Against the background described above, the objective of this paper is to analyze the role and success factors of livestock trading cooperatives in modern meat supply chains. We focus on the following research questions: What role do trading cooperatives currently play in food supply chains, how do the organizations perceive their roles in meat supply chains, what do they consider their success factors, and how do farmers perceive the role and success factors of trading cooperatives in food supply chains? The study is based mainly on an empirical analysis of livestock trading cooperatives in German pork production. Additional analyses focus on trading cooperatives in the beef and turkey chains.

Livestock trading cooperatives in German pork supply chains

In Germany, producers of slaughter pigs can choose between very different marketing channels (Czekala, 2003; Spiller et al, 2005). A small minority of farmers have established direct marketing relationships with consumers based on on-farm slaughtering, cutting and in some cases even processing their own pigs. Another group of farmers directly deliver their slaughter pigs to abattoirs (single-tier system). Westfleisch eG, Germany's third largest abattoir, strongly promotes marketing contracts with farmers, whereas the vast majority of competing private and cooperative abattoirs favor spot-market or informal, long-term relationships with farmers. A third group of farmers rely on livestock traders when selling their slaughter pigs (two-tier system). In this distribution channel, private and cooperative traders compete heavily for market shares. Figure 2 illustrates that

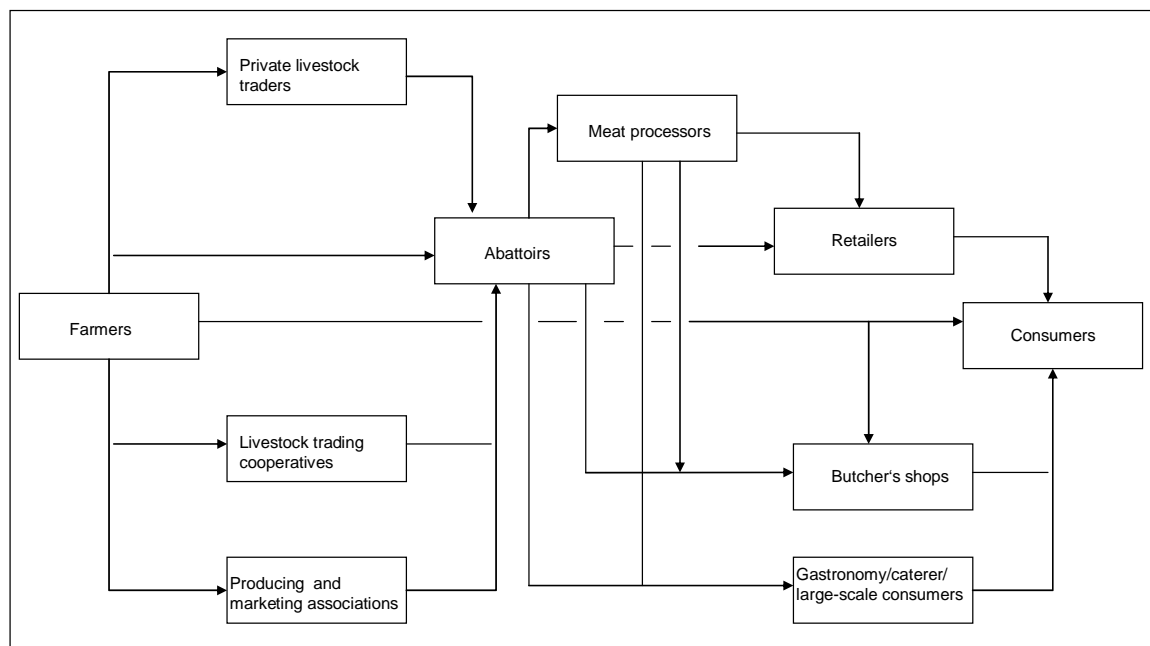


Figure 2: Business relationships in meat supply chains (Spiller et al, 2005, p. 86)

abattoirs have a bottleneck function in meat supply chains—except for the small niche market of direct marketing relationships with consumers. Therefore, deciding on marketing channels and the design of business relationships with abattoirs is of fundamental importance to pig producers.

For historical reasons, two very similar but not identical groups of cooperatively managed organizations can be distinguished in the livestock trading industry: producer-owned livestock trading cooperatives (*Viehvermarktungsgenossenschaften*, or *VVGs*) and producing and marketing associations (*Erzeugergemeinschaften*, or *EZGs*).

VVGs are based on the German Law on Cooperatives (*Genossenschaftsgesetz*). Their main goal is to pool the marketing of livestock and to organize sales and transport of slaughter animals. VVGs are organized according to the economic principles of cooperatives: self-help, self-administration, personal responsibility, democracy, identity, and solidarity and advancement (Rhodes, 1983; Beuthien, 1990; Theuvsen, 2006). Therefore, VVGs are sometimes considered most appropriate for small-scale farming operations that are not big enough to allow the establishment of direct marketing relationships with abattoirs (Theuvsen and Recke, 2007).

EZGs are founded in accordance with the German Law on Market Structures (*Marktstrukturgesetz*). The Law on Market Structures allows exceptions from general laws on anti-competitive behavior in the agribusiness sector if collusive behavior allows the supply and marketing of agricultural products to be better tailored to market requirements. Therefore, EZGs not only pool the marketing and organize sales and transport of livestock but also set up rules that improve the quality and homogeneity of products produced by farmers. Therefore, they typically establish closer relationships with farmers than VVGs and require them to market all their livestock to the EZG, whereas VVGs also allow farmers to have alternative business relationships with abattoirs or private livestock dealers (Spiller et al, 2005). From a legal perspective, EZGs are not organized as cooperatives but as registered for-profit associations. Nevertheless, their main objectives are very similar to those of the cooperative movement so that EZGs and VVGs can be both regarded as varieties of livestock trading cooperatives.

An empirical study conducted by Spiller and his colleagues (2005) in Germany's leading pig-producing areas in Westphalia and the Weser-Ems region, both located in the northwestern part of the country, showed that the share of farmers who directly contract with abattoirs, prefer private or cooperative traders or use a mixture of direct and indirect sales of slaughter pigs varies remarkably depending on the abattoir involved (cf. Figure 3). Not surprisingly, the single-tier system is most preferred by farmers delivering to the Westfleisch eG due to the processor's strong preference for marketing contracts. The picture is much more mixed with

regard to competing abattoirs in the region. Although not statistically significant, firm size seems to play a role since Vion and Toennies, Germany's largest and second-largest abattoirs, reveal higher percentages of direct relationships with farmers than their smaller competitors.

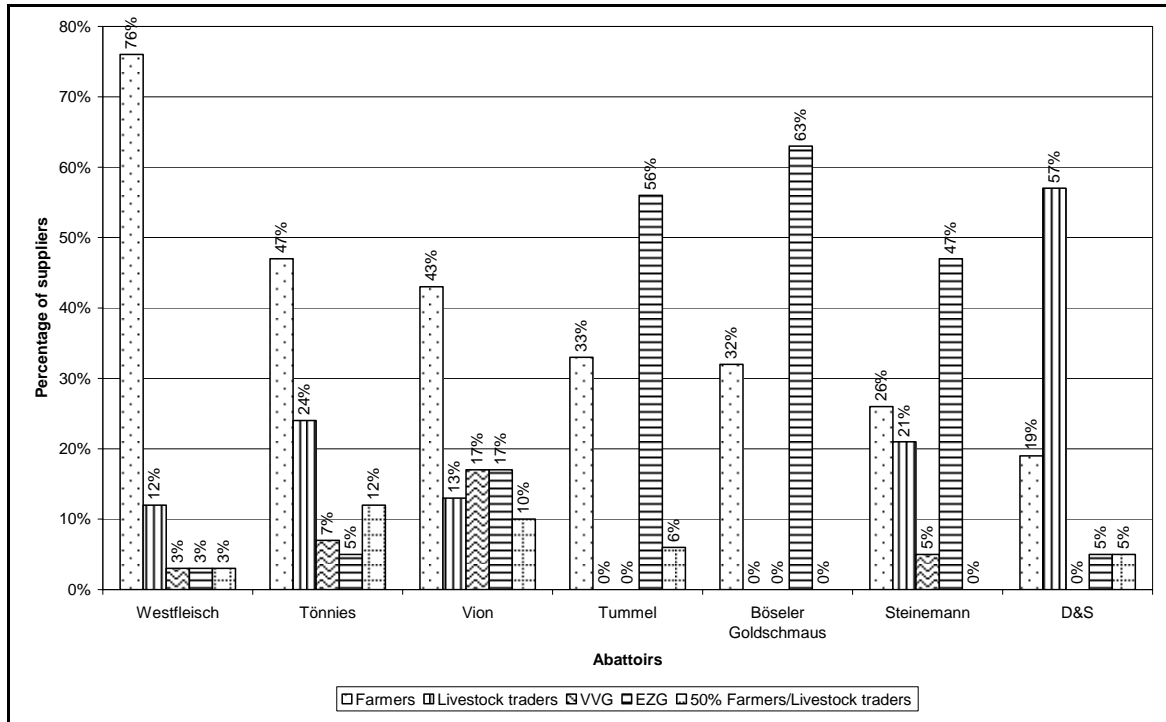


Figure 3: Preferred marketing channels of pig producers in Westphalia and the Weser-Ems region (Spiller et al, 2005, p. 301)

The empirical study referred to in Figure 3 strongly focused on farmers of above-average size pursuing growth strategies. The picture is more mixed when a more representative sample of farmers is surveyed. In an earlier study in Lower Saxony that included, but was not restricted to, the above-mentioned Weser-Ems region, Traupe (2002) reports that 7.4% of farmers directly deliver their pigs to slaughterhouses, 34.3% prefer private livestock traders and 58.3% prefer livestock trading cooperatives. Regardless which study more accurately represents the reality of slaughter pig marketing, an important role is attributed to cooperative livestock traders.

Methodology

German livestock trading cooperatives were surveyed in two waves between February and April 2005 and May and June 2006. The first wave focused on cooperative slaughter pig traders in Northwestern Germany. The survey was strongly supported by the EZG umbrella organization in Lower Saxony

(Vereinigung der Erzeugergemeinschaften fuer Vieh und Fleisch e. V.) and regional cooperative associations. In this survey, questionnaire-based telephone interviews of 20 to 25 minutes were conducted with 36 managing directors of VVGs and EZGs. The former were based mainly in Westphalia, whereas the vast majority of the latter were located in the neighboring Weser-Ems region (Theuvsen and Recke, 2007; Recke et al, 2006).

The second survey included 29 managing directors of VVGs and EZGs in the German states of Baden-Wuerttemberg, Bavaria, Hesse, North-Rhine Westphalia and Thuringia. Sixteen of the respondents managed organizations in Bavaria alone due to the strong support of the study by the Bavarian EZG and VVG umbrella organization (*Ringgemeinschaft Bayern e. V.*). In the other states, the survey was supported by farmer associations, the ministry of agriculture or environment or other regional authorities. Unlike in the first survey, we included not only pig trading cooperatives, but also VVGs and EZGs trading cattle, piglets or turkeys. This extension seemed reasonable since it allowed us to come up with a larger and more representative sample and because the questionnaire could also be answered easily by EZGs and VVGs outside the pork industry. Again, telephone interviews of 20 to 25 minutes were conducted using the same questionnaire that had already guided the first survey.

The questionnaire focused on EZGs' and VVGs' purchasing and marketing channels, service spectra and success, i.e. the "hard" variables. It left out "soft" factors such as trust and commitment. Nevertheless, results will also be discussed in the light of the business-to-business marketing literature. The questionnaire consisted of open and closed questions. Where respondents were asked to comment on pre-formulated statements, seven-point Likert scales were used (1 = very high / very important / strongly agree; 7 = very low / very unimportant / strongly disagree).

The first wave of the survey was mirrored by face-to-face interviews with 357 farmers in Westphalia and the Weser-Ems region, who were asked the same questions as the managing directors of the EZGs and VVGs (Spiller et al, 2005). This allowed us to compare organizations' self-perception with that of their members and to get a picture of the organizations' role in supply chains that is less biased than the one obtained from perceptual measures (Ailawadi, Dant and Grewal, 2004).

Results

Background: Livestock production in Germany

Germany is one of the major livestock producers in the world. At the end of 2005, there were 281,000 livestock farms in Germany, including 183,400 cattle farmers and 88,700 pig farmers. The number of cattle decreased from about 14.5 million

animals in 2000 to 12.7 million in 2006 due to the existence of milk quota in the EU that limit production and ongoing changes in EU Common Agricultural Policy. Major production areas of cattle are the mountainous regions in Southern Germany (Bavaria and Baden-Wuerttemberg) and the coastal regions in North-Western Germany (Lower Saxony and Schleswig-Holstein). Bavaria (3.49 mio. animals), Baden-Wuerttemberg (1.04 mio.), Lower Saxony (2.49 mio.) and Schleswig-Holstein (1.15 mio.) represent about three quarters of German cattle herd size. Total beef production was nearly 1.15 mio. tons in 2006. Average farm size varies greatly between the production regions. In 2005 average farm size was only 51.4 animals (24.5 dairy cows) in Bavaria compared to 95.9 animals (46.4 dairy cows) in Lower Saxony (Destatis, 2006; Destatis, 2007a; Destatis, 2007b).

Germany is the world's third largest pork producer with an output of 4.7 mio. tons in 2006. In the European Union, Germany is the largest pork producer, followed by Spain, France, Poland and Denmark. After German reunification, German pork production declined due to the privatization process in Eastern Germany and the reduction of production capacities in the new German states. As a result, between 1990 and 1996, herd size decreased from 34.2 million pigs in 1990 to 26.5 million pigs in 1996 (Spiller et al, 2005). Since then, production has slowly recovered; in 2005, 88,700 pig farmers kept 26.86 mio. pigs. Due to growing imports of slaughter pigs, pork production reached an all-time high in 2006. In 2006, for the first time in history, Germany was a net exporter of pork (Burchardi et al, 2007).

The major pig producing area is located in North-Western Germany close to the Dutch border where 30,400 farmers keep about 14.5 mio. pigs, i.e. about 54% of the German pig herd. A second important production area is, again, Southern Germany (Bavaria: 3.7 mio. pigs on 25,300 farms; Baden-Wuerttemberg: 2.26 mio. pigs on 13,200 farms). Similar to cattle production, farm size is much larger in Northern Germany. Average herd size is 494.3 pigs in the North-West compared to only 146.7 pigs in Bavaria (Destatis, 2006; Destatis, 2007a).

Poultry production was 1.02 mio. tons in 2006. Similar to pork production, North-Western Germany is a major production area where more than 50% of German poultry production is located (Destatis, 2006; Destatis, 2007c).

German livestock production is characterized by deep structural changes. Between November 2005 and November 2006, 8.9% of all pig farmers and 4.0% of all cattle farmers exited production. Within the same period of time, the total number of pigs in Germany decreased by only 0.6% and the herd size of cattle was reduced by 1.9%. This means that the remaining livestock farmers grow remarkably. Therefore, about 60% of cattle are now kept on farms with a herd size of 100 or more animals. Concentration is even more impressive in pig farming where only 7,300 farms (out of 88,700 in Mai 2005) produce more than 50% of all German pigs. Average farm size in this category has gone up to 1,859.2 animals (Destatis, 2006).

Sociodemographic characteristics

All in all, 65 organizations participated in the survey—45 EZGs and 20 VVGs. Of these, 84.3% are slaughter pig traders (about 10.6 m. animals traded in 2004/05), 9.2% are cattle traders (about 100,000 animals marketed in 2004/05) and 6.2% are piglet or turkey traders (about 1.6 m. animals marketed in 2004/05). The EZGs were on average larger than the VVGs (Table 1).

Table 1: Sample

| | Total sample | EZGs | VVGs |
|--|--------------|-----------|-----------|
| Number of EZGs / VVGs surveyed | 65 | 45 | 20 |
| Average number of members in 2004/05 | 684 | 756 | 522 |
| Total number of animals traded in 2004/05 | 12,256,127 | 8,983,672 | 3,272,554 |
| Average number of animals traded per EZG or VVG in 2004/05 | 191,504 | 204,174 | 163,628 |

Of the respondents, 98.5% were male—a typical result in the industry surveyed. The average age of the respondents was 44 years (Figure 4). Their formal qualifications were very mixed. About one-third hold university degrees, 6.2% have high school diplomas, and 60% visited other kinds of secondary schools (such as vocational schools).

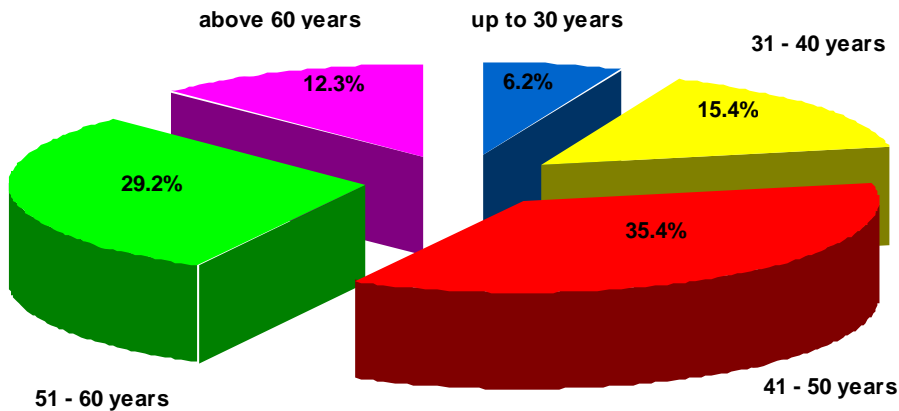


Figure 4: Age of respondents

Purchasing and marketing channels

Of EZGs and VVGs 56.1% buy livestock from farmers who have signed contracts with the organizations. Another 43.1% of livestock are purchased from noncontracting farmers, and the remaining 0.8% are purchased from private livestock traders. All in all, the numbers in Figure 5 indicate that EZGs do indeed establish somewhat closer relationships with their members. Trading livestock purchased from noncontracting farmers or private traders plays a markedly smaller role in EZGs. This indicates that they can count more on their members, who are not allowed to sell livestock to other traders.

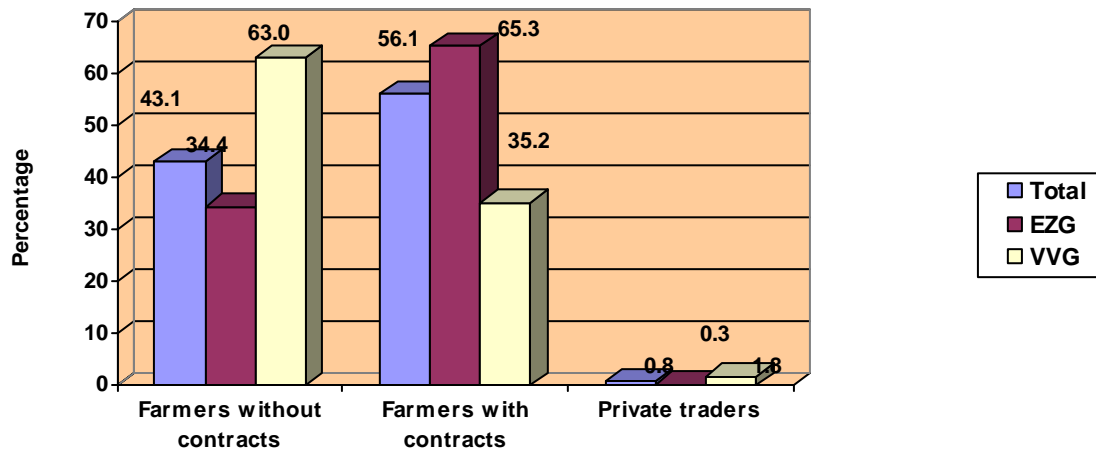


Figure 5: Purchasing channels of cooperative livestock traders (n=65)

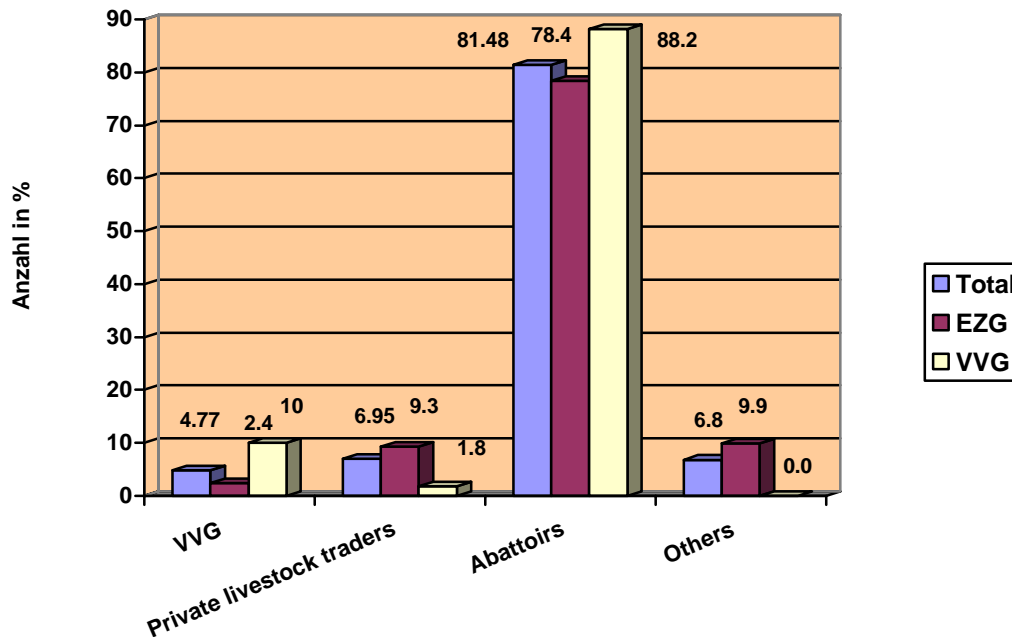


Figure 6: Marketing channels of cooperative livestock traders (n=64)

The marketing channels of VVGs and EZGs are quite similar. Not surprisingly, abattoirs are the main buyers of slaughter animals, regardless of whether livestock is traded by EZGs or by VVGs. But about 10% of livestock are also sold to other cooperative and private traders. “Others” in Figure 6 refers to slaughter animals sold to small butchers and direct sales of meat to consumers by EZGs and VVGs operating their own slaughterhouses. The comparatively low importance of sales to private traders confirms earlier analyses by Pottebaum et al (1996), who reported that the once much more important sales of VVGs to private traders had largely diminished and were replaced by marketing relationships with abattoirs.

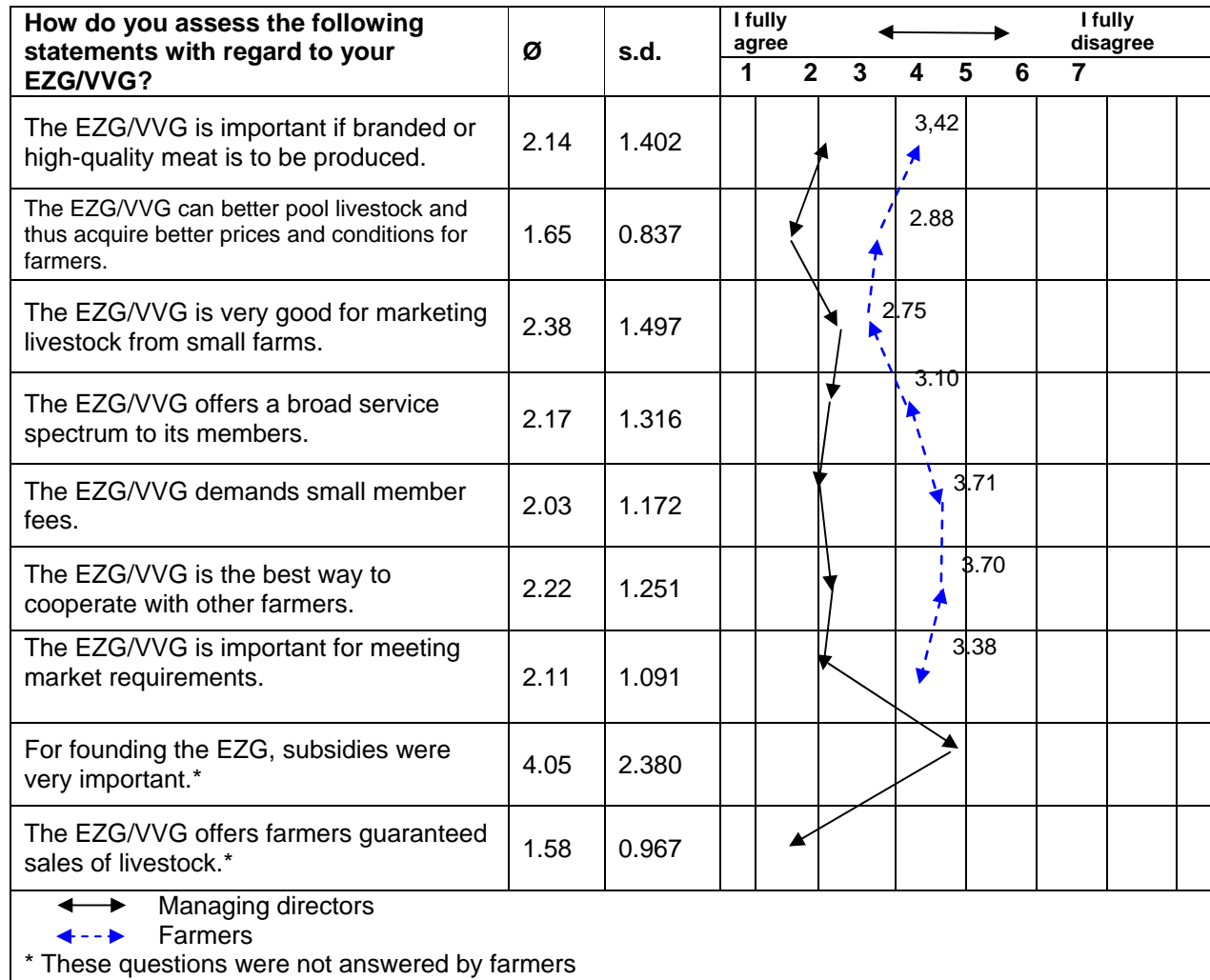


Figure 7: Perception of EZGs’ and VVGs’ roles (n=63; Spiller et al, 2005)

The roles and service spectra of cooperative livestock traders

Managing directors of EZGs and VVGs were asked how they perceive the roles of their organizations in meat supply chains. Figure 7 shows that the managing

directors have a very positive self-perception of their organizations and consider them important partners for farmers. Farmers, on the other hand, have a somewhat more neutral perception of livestock trading cooperatives. They are, in fact, nearly indifferent with regard to the statements that cooperatively organized traders are necessary for meeting the future requirements of livestock markets and can be considered the best form of farm cooperation when marketing animals to slaughterhouses. It is also striking that the large farmers surveyed consider EZGs and VVGs appropriate partners for small farmers. T-tests show that average values given by managing directors and the farmers are significantly different (sig. = .000, except the third statement where values are significantly different at the 10% level). Against the background of structural changes in agriculture and growing farm sizes, this indicates a future challenge for cooperative livestock traders. If farms grow and farmers at the same time consider a two-tier marketing system most appropriate for small farms, then the future of EZGs and VVGs is highly insecure.

The perceptions of the farmers surveyed are interesting from a relationship marketing perspective. Trust is often considered a major determinant of relationship commitment (Kwon and Suh, 2004; Dyer, 1997). The degree of commitment determines the efforts of supply chain partners at maintaining their relationship (Morgan and Hunt, 1994). The somewhat sceptical assessment of livestock trading cooperatives by farmers indicates a lack of trust in the future role of these organizations and, thus, a more or less instable relationship between farmers and cooperatives. A considerable number of farmers that have left these cooperatives over the years reflects a somewhat loose relationship at arm's length (Spiller et al, 2005).

Obviously, VVGs and EZGs experience heavy competition from alternative marketing channels, such as the single-tier system. This is underpinned by 48 farmers in our farmer survey, who said that they had left a VVG or a EZG. Farmers who had never been members of a VVG or EZG argued that they prefer direct business relationships with abattoirs (29.1%), perceive competing marketing channels as more attractive (19.6%) or do not anticipate gaining advantages from joining a livestock trading cooperative (22.1%; several answers allowed). Other arguments, such as fees charged to members (9.0%), dissatisfaction with services offered (7.8%) or the organizations' management (5.9%), the strict regulations to be followed (5.9%), a general lack of trust in the organization (3.0%) or the distance to the nearest organization (2.5%), are of minor importance (Spiller et al, 2005). We can conclude from farmers' answers that it is paramount for livestock trading cooperatives to develop attractive services that promise clear advantages to large farmers and improve the organizations' competitiveness compared to private traders and direct business relationships with abattoirs.

The current service spectrum of VVGs and EZGs mainly consists of traditional core functions, such as bargaining with abattoirs, organizing animal transport, supervising slaughtering (especially classification of carcasses) and billing through slaughterhouses, the organization of piglet and calf purchases and paying interests on member funds. This service spectrum is deliberately complemented by new services, such as supporting members introducing quality assurance schemes or developing recommendations for improving profitability of farms. Today, due to the high financial risks and capital requirements, operating an own slaughterhouse is quite rare (cf. Table 2).

Table 2: Service spectrum of cooperative livestock traders

| Service | % |
|---|------|
| Bargaining with abattoirs (n= 62) | 93.8 |
| Organizing animal transport (n= 65) | 89.2 |
| Operating a truck fleet to provide animal transport** (n= 65) | 53.8 |
| Supervision of slaughtering* (n= 61) | 69.2 |
| Supervision of billing through of slaughterhouses (n= 65) | 96.9 |
| Support of introduction of quality assurance schemes (n= 64) | 92.3 |
| Developing new marketing channels (n= 64) | 89.2 |
| Developing recommendations for improving profitability* (n= 64) | 64.6 |
| Organizing piglet and calf purchases (n= 64) | 89.2 |
| Paying interest on member funds** (n= 65) | 23.1 |
| No operation of an own slaughterhouse (n= 63) | 84.6 |

* typical service of EZGs

** typical service of VVGs

The great significance of traditional core functions raises the question whether cooperative livestock traders in Germany are well prepared for accelerating structural changes in agriculture and the fierce competition with other marketing channels. Furthermore, collaboratively organized services are scarce. Therefore, developing innovative services that improve the organizations' attractiveness for highly professionally managed large farms is still a challenge for EZGs and VVGs.

Success factors of cooperative livestock traders

One of the main objectives of this survey was to identify success factors for livestock trading cooperatives. But how should a cooperative's success be measured? According to its constitutive idea, the goal of cooperatives is the sustainable economic improvement of economically weak individuals and small farms and

businesses (Theuvsen, 2006). Therefore, acquiring better prices for farmers can be considered the foremost task of livestock trading cooperatives. Unfortunately, this information is generally regarded as highly confidential and not revealed to outsiders. Therefore, we defined a successful livestock trading cooperative as an organization that has (a) a growing or, at least, constant number of members, (b) a growing or, at least, constant number of slaughter animals marketed to abattoirs, and (c) a positive or, at least, neutral perception of its own economic prospects. The latter was measured on a seven-point Likert scale, on which respondents were asked to assess their organizations' economic prospects. Answers from 1 (= very good) to 3 (= somewhat good) were classified as positive economic self-assessments, 4 (= neither good nor bad) as a neutral perception, and answers from 5 (= somewhat bad) to 7 (= very bad) as negative self-assessments.

Figure 8 shows that nearly half of the organizations surveyed suffered from declining numbers of members between 2001 and 2004/05 and only about one-third of the organizations were able to attract a growing number of farmers. The situation is more promising with regard to number of animals marketed due to growing farm sizes and mergers between organizations that result, at least in some cases, in growing businesses despite declining numbers of members. A minority of EZGs and VVGs attribute to themselves positive future economic prospects, whereas nearly half of the respondents anticipate neither good nor bad prospects.

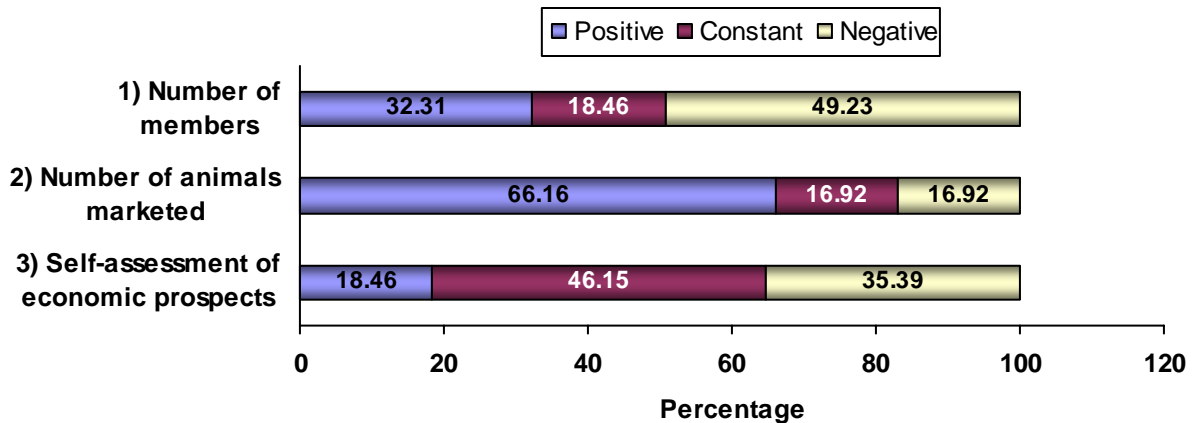


Figure 8: Self-assessment of economic prospects (1): n 2001= 62, n 2004/05= 64; 2): n= 64, 3): n= 65)

Of the 65 organizations surveyed, twelve EZGs and three VVGs—23% in total—meet all the criteria of a successful cooperative trader specified above. Of the traders, 66% report growing numbers of animals being marketed and, subsequently, growing turnovers but have declining numbers of members and/or a negative outlook on their economic future. If our hypothesis that an attractive service spectrum is key to the future success of a livestock trading cooperative is true, the

current service spectra may also explain why some EZGs and VVGs are more successful than others. A closer look at the service spectra of the successful organizations in our sample reveals that all of these organizations offer similar services to their members (Table 3).

Table 3: Service spectrum of successful cooperative livestock traders

| Service spectrum of successful | |
|--|---|
| EZGs | VVGs |
| Bargaining with abattoirs | |
| Organizing animal transport | |
| Supervision of billing through slaughterhouses | |
| Supporting members in certification processes | |
| Developing new marketing channels | |
| Developing recommendations for improving profitability | Paying interest on member funds |
| Supervision of slaughtering | Operating a truck fleet to provide animal transport |
| | Organizing piglet and calf purchases |
| | No supply of members with operating resources |
| | No operation of an own slaughterhouse |

Generally speaking, successful livestock trading cooperatives offer a broader spectrum of services to their members, whereas less successful organizations either offer fewer services to members or operate costly and, in many cases, unprofitable slaughterhouses. But, even in successful organizations, service spectra embrace mainly the traditional core functions of livestock traders. With the support of farmers' quality assurance activities as the only exception to the rule, innovative services are still quite rare even in successful EZGs and VVGs. This provides a starting point for developing more attractive services that may have the potential to provide EZGs and VVGs with unique selling position features that allow them to gain competitive advantages over alternative marketing channels.

Conclusions and theoretical implications

The study presented here provides one of the rare insights into the livestock trading business, an industry often overlooked in agricultural economic research (but see also Wachenheim, deHillerin and Dumler, 2001). It becomes obvious that meat supply chains in developed countries, like Germany, are organized in a much more complex way than the often quoted simple spot market–contract–vertical integration trichotomy suggests.

The wide gap between the self-perception of VVGs and EZGs, on the one hand, and the role farmers attribute to these organizations, on the other, highlights the need for the organizations surveyed to better adapt their service spectra to farmers' needs, improve their image, better communicate their services and added value to farmers and, in this way, convince farmers of the advantages of joining a cooperative, be it a VVG or an EZG. Relationship management may be an appropriate way to deepen relationships with farmers and improve trust in the organizations and commitment.

The results also show that the organizations surveyed are characterized by remarkable success differences regarding numbers of members, sales volumes and future economic prospects. Obviously, success in the livestock trading industry is not only determined by external contingency factors, such as structural changes in agriculture and the slaughter industry or chance but can also be influenced strongly by the way the organizations are managed. Since trading cooperatives are under severe competitive pressures from low-cost private livestock traders, their service spectra need thorough examination and enhancement.

Successful organizations show that, despite some theoretical doubts in transaction cost economics, livestock trading cooperatives may have a future in modern meat supply chains as long their service spectra meet members' needs and offer an added value to farmers.

Changing market requirements, such as the introduction of certification systems and neutral third-party audits into European as well as global agribusiness (Schiefer and Rickert, 2004; Hatanaka, Bain and Busch, 2005; Theuvsen et al, 2007), offer new opportunities for trading cooperatives by, for instance, establishing themselves as preferred service providers for their members.

Furthermore, in the presence of rapidly growing and internationalizing abattoirs (Theuvsen and Ebneth, 2005; Tozanli, 2005), many farmers strongly prefer more centralized marketing activities, hoping for better prices vis-à-vis large slaughterhouses with market power. Existing EZGs and VVGs can serve as starting points for more centralized marketing of slaughter pigs and cattle. In this spirit, Spiller et al (2005) suggested a new organization model for German pork production

based on a more centralized marketing approach by transforming existing EZGs and VVGs into larger and more powerful marketing offices, informal long-term or open market relationships between farmers and slaughterhouses, and more advanced supplier relationship management approaches.

Third, in food chains characterized by sharp conflicts over sharing limited resources between different parts of the value chain, market intermediaries, such as EZGs and VVGs, have the important role of smoothing conflicts and, thus, saving transaction costs. Thus, all in all, neither farmers nor the managers of the cooperatives surveyed subscribe to the widespread view that stricter vertically coordinated supply chains are the only future of meat production in Germany (Schulze, Spiller and Theuvsen, 2006b).

These findings have interesting theoretical implications since they suggest that there may not be “one best way of organizing” food supply chains, whether open markets, marketing or production contracts or vertical integration. Therefore, there may also be a chance for well managed trading cooperatives to find an economically sustainable position and profitable role in food supply chains. This insight parallels the idea of equifinality widely shared in today’s organization theory (Katz and Kahn, 1966). Equifinality means that there is more than one effective way to design firms or supply chains in a given environment (Gresov and Drazin, 1997). Therefore, even in a world where contract farming systems are becoming increasingly important in transition and developing economies (World Bank, 2005) as well as some developed countries (Martinez, 2002a, 2002b; Haley, 2004), there may be viable alternatives, for example, the prevalence of trading cooperatives with tailor-made service spectra that meet the demanding needs of farmers in developed economies. In contrast to this, current writing on the organization of food supply chains, which strongly advocates stricter vertical organization, still seems too much inspired by deterministic approaches typical of, for instance, early contingency theory (Donaldson, 2001) as well as current transaction cost theory.

Managerial implications and future research

The study has several interesting managerial implications. One of the most important findings is that the organizations’ management should consider the cooperatives’ service spectrum a major source of competitive advantage. They may, for instance, establish themselves as preferred service providers to farmers in the growing quality assurance business where farmers need assistance prior to external audits through certifying firms. The study also highlights the need for cooperatives to improve their image and better communicate their services to current and potential members and intensify their supplier relationship management activities. Recent research into supplier relationships in food supply chains has identified a number of suitable internal and external relationship management activities. These include codes of ethics, clarification of personal responsibilities for supplier

management, employee training, communication activities (newsletters, meetings etc.), improved transparency of business activities, personal interaction with suppliers, improved participation of suppliers, more intense communication with opinion leaders and improved complaint management (Spiller et al, 2005).

Furthermore, livestock trading cooperatives are, at least in most cases, small compared to rapidly growing abattoirs. Therefore, more horizontal cooperation between traders as well as mergers can be ways to improve the competitive position of traders. This might be most important for the less successful organizations that suffer from declining numbers of members or animals marketed or have a negative perception of their own economic prospects. So far, cooperation is quite rare in the livestock trading business. Last but not least, EZGs and VVGs may consider professionalizing their management. At present, the smaller organizations, at least, are often still managed by unpaid voluntary or part-time managers. Integrating more professional management know-how into livestock trading cooperatives should allow them to cope more successfully with demanding meat markets (Schulze, 2002).

Meat supply chains are interesting research objects. Future research should seek to map more precisely the organizational details of these chains and refrain from coarse conceptualizations of organizational alternatives for designing food supply chains. In this context, more thorough analyses of the role intermediaries play in supply chains are required. Communication in business transactions and relationships, for instance, is often neglected (Hinner, 2007; Theuvsen and Plumeyer, 2007). Future research should also further extend sample sizes, include other cooperatives, like those in the poultry, egg, grain, and vegetable sectors, and relate empirical findings to existing theoretical knowledge about the internal functioning of value chains. Furthermore, thorough assessments of the feasibility, costs as well as potential effects of alternative supplier relationship management activities would help managers in livestock trading cooperatives. Finally, the exact relationship between formal contracts between farmers and cooperatives, farmers' ownership of and interest in the cooperatives, and non-contractual relationship management activities needs further research.

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