Int. Jrnl. of Soc. of Agr. & Food, 2017, Vol. 24, No. 1, pp. 57–76

From 'Additive' to 'Multiplicative' Patterns of Growth

MARKUS SCHERMER

Abstract. Growth processes are uniquely problematic for small-scale farms due to their impacts on a delicate balance of basic internal resources. Most of these resources, such as permanent labour, machinery, structures, and livestock cannot be increased incrementally in linear processes. Additionally, farms with the lowest levels of production have the most problematic task of resource realignment. Due to higher transaction costs and inconsistent quality, market partners are not eager to meet increased demand by increasing the number of suppliers. Instead, these partners ask current suppliers, such as small-scale farmers, to increase the volume of production or they threaten to replace them with larger producers. Thus, small-scale farmers often feel growth is forced upon them. However, there are examples where supply chain actors actively engage to preserve small-scale structures by developing a distinct growth strategy based on increasing the output of an entire network rather than placing the onus on single suppliers. Such novel growth accommodations may contribute to a future food system increasingly sustainable in economic, social, as well as environmental dimensions.

This article uses the case of the cooperative Bioalpin, located in Tyrol, Austria, to examine how such regional networks may be constructed successfully. Bioalpin sells a full range of organically grown mountain products under their own brand, mainly via a family-owned regional supermarket chain. Bioalpin has grown substantially while concurrently supporting small-scale regional production and processing structures. We use the theoretical concept of netchain analysis to explore the organizational structure and the mechanisms of horizontal and vertical coordination in this values-based supply chain. The results of our analysis may shed light on the obstacles or complications associated with a focus on network growth, versus the growth of individual units.

Background

Some time ago I met with a farmer who I had not seen for several years. He had been one of the pioneers in organic egg production in the mountainous province of Tyrol, Austria. When I asked him how things had been going in the last few years, he answered:

Markus Schermer is University Professor of Rural Sociology, at the Department of Sociology, Mountain Agriculture Research Unit, University of Innsbruck, Universitätsstrasse 15, 6020 Innsbruck, Austria; email <markus.schermer@uibk.ac.at>. The author acknowledge the financial support for the project HealthyGrowth provided by the national agencies, in this case the Austrian Ministry of Agriculture, Forestry, Environment and Water Management as partner of the FP7 ERA-net project CORE Organic II.

ISSN: 0798-1759 This journal is blind refereed.

> 'I am fine, I didn't have to change anything over the last 15 years.'

This statement seemed quite surprising, and he further explained:

> 'When I started to deliver to the regional supermarket chain, they said either you grow big or you have to get out. However, a sudden increase of my production would not have been feasible. Only when we found some more organic egg producers and grouped together, we could remain in business.'

This statement prompted me to examine the implications of growth for small-scale farmers and options to preserve small-scale production structures.

It seemed that, for the farmer, keeping the production system unchanged was more important than the significant changes he had made in the way of doing business. Entering into new business arrangements seemed for him to be easier than increasing production volume and enabled him to retain his quality. Small-scale farms and enterprises typically try to find an optimal equilibrium of basic resources: labour, buildings, machinery and pasture have to be in scale with livestock populations. Farmers in Tyrol often phrase this as 'keeping the farm running smoothly'. Growth processes tend to disturb this delicate proportionality while recalibration becomes complex.

In the case of small-scale enterprises, it is commonly acknowledged that growth processes are not linear but happen in accordance to the demands of the business' branch and its environment (e.g. Butler, 2006). Small farms reach a tipping point at which costs no longer increase proportionally to volume increases. That means one can speak of an L-shaped or even U-shaped cost curve of agricultural production. For example, livestock population increases are not always incrementally proportional to accommodation adjustments (Duffy, 2009). When tipping points are reached, new infrastructure – in our example a new barn for livestock – is required (Butler, 2006).

Growing enterprises in processing and trading usually want to increase their supply of raw materials without increasing the number of their suppliers. For them high numbers of small suppliers imply high transaction costs and varying qualities. Small-scale and peasant farmers especially, who usually act risk averse (Mendola, 2007), therefore often perceive growth as forced upon them by outside factors, e.g. a fast-growing market partner. Economies of scale, positive for the market partners, clash with limitations in the economies of size for small-scale farmers (Rassmussen, 2013).

Over the past several decades, we have witnessed a continuous, rapid growth of demand for organic goods globally (AMI, 2014; Willer and Lernoud, 2015; Freyer, 2016). With the growth of the sector, the pressures of conventional market demand also affect organic supply chains. Contradictorily, consumers still associate organic products with small-scale and local production systems (Rigby and Brown, 2003). Thus, rapid growth of organic supply chains and associated structural changes may endanger central organic principles such as sustainability (Guthman, 2014). Lack of fulfillment of these consumer expectations decreases trust in organic supply chains. The recent debate on the conventionalization of organics in Europe (see Darnhofer et al., 2010) is an expression of this erosion of consumer trust. The rapid growth of organics may undermine supply chains, lead to undesired landscape changes, and transform social, economic, and technological dynamics (Freyer, 2009). The same forces of growth lead to the disappearance of mid-sized family farms in the US (Lyson et al., 2008). As primary producers become increasingly integrated into long chains, vertical integration becomes more and more difficult, if processing, distri-

bution and retailing embrace the efficiencies of economies of scale and concentration (Mount, 2012). It seems that the market forces result in similar effects on family farming, whether organic or conventional.

Moreover, in the European perspective of sustainable rural development, a dense web of small- and medium-scale organic market actors along the entire chain is expected to make a substantial contribution to increase the resilience of rural areas (Marsden, 2010). Scholars have also employed a network perspective on artisan food production to understand rural development aspirations (Murdoch, 2000; McKitterich et al., 2016). Artisan food producers make valuable contributions to local food production and to food culture, as well as to the enhanced reputation of regions for their food expertise (Ilbery and Kneafsey, 2000; Tregear et al., 2007). Moreover, connecting artisanal food production with cultural landscape provides an important basis for tourism in many regions (Sjölander-Linquist and Cinque, 2014). These claims have even translated into policy suggestions at the EU, which were published as the final report of a focus group on 'Innovative Short Food Supply Chain Management' (EIP-AGRI, 2015). This forum had been assembled in the frame of the European Innovation Partnership 'Agricultural Productivity and Sustainability (EIP-AGRI)', launched by the European Commission.

Empirically, we find several cases in Europe as well as in the USA where dedicated supply chain actors prioritize preserving small- and mid-scale structures by developing an alternative strategy for growth. To increase supply, they aim to multiply suppliers rather than forcing growth on a single unit in order to provide additional quantities. For an overview of European case studies, see the web page of the Core Organic Project 'HealthyGrowth' (HealthyGrowth, 2017), where several examples are provided, such as the case of the Danish Food communities, box schemes in Sweden and Austria or the organic cooperative Bioalpin, which is featured in this article. For the US, the web page of Agriculture of the Middle <http://agofthemiddle.org> provides examples such as the Full Circle box scheme or the Organic Valley cooperative.

Such forms of growth are closely linked to new cooperative approaches to supply chain organization and coordination. A recent special issue of the *Journal of Agriculture, Food Systems, and Community Development* (vol. 4, no. 3, 2014) is devoted to 'cooperatives and alternative food systems initiatives'. It provides not only a number of case studies across North America and Europe, but also conceptual insights into the policy context, structural requirements and network construction. While forms of producer–consumer cooperation have already received significant attention, relations and interdependencies between actors along the supply chain remain largely underexplored (McKitterick et al., 2016). However, the results of our study suggest that cooperative structures are balancing the power relations and providing the basis for the successful growth of networks of small-scale producers.

This case study contribution describes the challenges in organization and coordination for supply chains and regional networks that grow successfully, while allowing the participating farms to remain small. We discuss a case study of the Bioalpin cooperative, which has the explicit goal to preserve small-scale farming and processing structures. Located in Tyrol, Austria, farms are small and many of them cannot enlarge their operation due to the geographical characteristics of a mountainous region in the heart of the Alps. Most farms cultivate less than 20 hectares (including alpine pastures). As they cannot make a living from agricultural production alone, most farms are pluri-active and engage in off-farm income-generating

activities (Streifeneder, 2010).

Tourism, the leading economic sector of the province, provides many opportunities, most prominently via holidays on farms. However, tourism relies also on cultural landscape features provided by traditional small-scale farming practices (Streifeneder, 2010). Farming is predominantly livestock oriented with a large share of permanent grassland. Dairy farming in combination with the production of breeding stock is the dominant farming system. Organic farming is quite important; approximately 23% of all farms in Tyrol are certified organic, and approximately 37% of the utilized agricultural area in the province is certified organic. However, this figure includes extensive alpine pastures, which are often managed on a communal or collective basis (Landwirtschaftskammer Tirol, 2014).

Direct marketing with farm-gate selling and farmer's markets is an important source of income. However, due to the high proportion of off-farm employment and the resulting labour constraints, the potential for the extension of direct marketing is limited. This was one of the reasons for the founding of Bioalpin. The cooperative sells a full range of organic mountain products under their own brand ('Bio vom Berg', which means organics from the mountain), mainly via the family-owned, regional supermarket chain MPreis. The initiative exhibits substantial growth over the last decade, and at the same time, has managed to support and preserve small-scale regional production and processing structures. On the Bio vom Berg homepage <http://www.biovomberg.at/> they link the distinct quality of their products to the limited production structure. They present the products as handcrafted from a mountain region.

With our analysis of the organizational structure and their mechanisms of horizontal and vertical coordination, we want to shed light on the options and problems associated with a focus on network growth versus the growth of individual units. The article is structured as follows. A section on the conceptual framework of mid-scale values based food chains and the netchain approach follows this introduction. The next section describes the case study, first the material and methods used to retrieve the data, then a rough description of the historical development and the present set-up of Bioalpin and its surrounding network. Subsequently, we put the case into the analytical perspective of the conceptual framework and describe modes of coordination and value creation in the case. Finally, we discuss the implications of the particular case on general issues of network growth and its challenges and effects.

Conceptual Framework: Combining Mid-scale Values-based Food Chains and Netchains

As mentioned, food production systems in mountain regions are limited by climate and topography in their range of products as well as in their opportunities to utilize economies of scale. Limited options for mechanization due to steep slopes and fragmented landholdings result in high labour requirements. Thus, production generally remains on a small scale with artisanal processing, resulting in high quality, but small quantities. As the interviews in our case study indicate, such dedicated small-scale producers often feel severe production pressure promptly upon leaving the direct-marketing niche and entering larger sales channel competition. This pressure is often connected to the growth of each business unit to remain competitive with larger players and to comply with the overarching economies of scale (Butler,

2006). Small-scale farmers are often reluctant to extend their production volume, because they are afraid of disturbing the fragile equilibrium of their resource configuration. For some farmers growth is not an option at all due to the natural conditions. Moreover, distinct quality features of artisanal production may be at stake if volume is increased, while the demand for such qualities often exceeds the supply by direct marketing.

Under such conditions, a different mode of growth is needed, one that follows the logic to multiply the number of actors in the supply chain instead of increasing the production of single farm units. Such a form of growth requires coordination by an intermediary, who acts as a focal unit, pooling the volume of a multitude of artisanal producers to supply downstream market actors. In addition, a collective perception of quality, which is shared by all actors along the supply chain, becomes part of quality management (Hanf and Pieniadz, 2009). This is necessary to ensure the communication of specific quality features attached to artisanal products throughout the chain from the producer to the consumer.

Review of the literature reveals that a promising development of new forms of such dedicated mid-scale food chains emerged all over Europe in recent years (e.g. Knickel et al., 2006, 2008; Megyesi et al., 2011; Schermer et al., 2011) as well as in the USA (Lyson et al., 2008). Based on long-term strategic alliances between business enterprises, these new business models combine quality with volume in mid-scale food chains. Such supply chains have been termed 'values-based food chains' (VBFCs) (Stevenson and Pirog, 2008; Stevenson et al., 2011; Pirog and Bregendahl, 2012; Hardesty et al., 2014). When referencing values-based food chains we like to emphasize particularly the plural aspect of 'values'. Contrary to the conventional value chains focusing on economic value, these particular value chains are based on collectively shared non-economic values. These refer, for instance, to animal welfare and other features of organic production systems, but in respect to mountain farming also to indigenous breeds and the health effects of alpine pastures with their specific composition of herbs and grasses. VBFCs combine such values, which add to a specific product quality with values that are embodied in the relationships between partners along the supply chain, such as fairness in price negotiations and profit distribution.

Stevenson et al. (2011) conclude that mid-scale VBFCs build their success on three foundations: 1. coupling appropriate volumes of high-quality, differentiated food products with value-adding stories of people, land, and practices; 2. entering long-term and win–win oriented strategic business partnerships based on trust and transparency; and 3. managing effective supply chain coordination and logistics, including product marketing, aggregation, processing, distribution and accounting.

We employ the concept of netchains (Lazzarini et al., 2001) as an analytical concept to understand the coordination processes required in alternative business models such as VBFCs. This concept integrates supply chain analysis and network analysis. Lazzarini et al. (2001, p. 7) define a netchain as 'a set of networks, comprised of horizontal ties between firms within a particular industry, such that these networks (or layers) are sequentially arranged, based on vertical ties between firms in different layers.'

The concept has been applied in several analyses of agri-food chains (e.g. Storer et al., 2003; Talamini and Ferreira, 2010; Nijhoff-Savvaki et al., 2012). Talami and Ferreira (2010) combine the netchain approach with social network theory and focus on the type and level of trust involved in network building, based on the concept of

embeddedness (Polanyi, 2001 [1944]; Granovetter, 1985). Both netchains and VBFCs build on the notion of social capital as a source of shared norms and values (Coleman, 1988; Woolcock, 1998). While relations in conventional supply chains, building on economies of scale, are rather informed by short-term considerations of price relations, VBFCs operate on long-term relationships of trust. As already noted, conventional supply chain relations are characterized by a power asymmetry, manifested in forcing small-scale partners to accept the role of mere price takers. In contrast, Talamini and Ferreira (2010, p. 2986) describe trust 'as crucial for the functioning of the new forms of organization based less on hierarchy and more on lateral relationship.' In a similar way, Stevenson et al. (2011) argue that farmers in mid-scale VBFCs are 'price negotiators', as distinct from 'price setters' in direct marketing, and 'price takers' in commodity marketing systems.

The concept of netchain relates the creation of trust closely to the various interdependencies between the links in the supply chain. Complex organizations such as netchains involve three types of interdependencies. 'Pooled interdependencies' imply that volume is aggregated horizontally on one level to be supplied to the next. This means standardization (such as a uniform quality and appearance) as a coordination mechanism. In contrast, 'sequential interdependencies' involve coordinated planning between various steps of production, processing and marketing vertically along the supply chain. In 'reciprocal interdependencies', all partners involved depend on each other. Coordination requires and promotes mutual adjustments among them. Whereas supply chain analysis deals with (vertical) sequential interdependencies of actors along the chain, network analysis focuses on (horizontally) pooled and reciprocal interdependencies. Netchain analysis combines both supply chain and network analysis, considering all three forms of interdependencies (Lazzarini et al., 2001).

The three types of interdependencies also imply different forms of value creation and value capture. In sequential interdependencies, value creation is based on cost reduction through optimization of production and operations and by minimizing transaction costs, while the value created is captured by certain actors through the appropriation of property rights (e.g. brand ownership). The source of value creation in pooled interdependencies is based on the social embeddedness (Granovetter, 1985) of all actors and learning processes leading to knowledge diversity or co-specialization. Positive effects are associated with the extension of the network. They can be a source of value for the individual network member (like reducing costs for certain services the network provides) or for an entire network, if the image of the network is raised and participation becomes more interesting for new entrants, which increases in turn the economic value. The externalities may also benefit society in general, for instance if an organic supply network reduces the environmental impact or a dense web of small-scale producers and processors benefits rural development. Lastly, reciprocal interdependencies may increase value by long-term close relationships between network members, which may lead to co-specialization. The improved knowledge on mutual conditions may furthermore reduce transaction costs associated with product innovation.

The combination of supply chain analysis and network analysis allows for a thorough mapping of the effects of various forms of interdependencies on sources of value creation and value capture as well as on coordination mechanisms. In turn, this comprehensive analysis of the network dynamics enables further understanding of the potentials and challenges of network growth. The netchain approach is

characterized by a simultaneous consideration of different forms of sources of value and coordination mechanisms. Figure 1 summarizes these characteristics and applies them to our case study. Combined with the concept of VBFC an approach of 'values-based netchains' emerges.

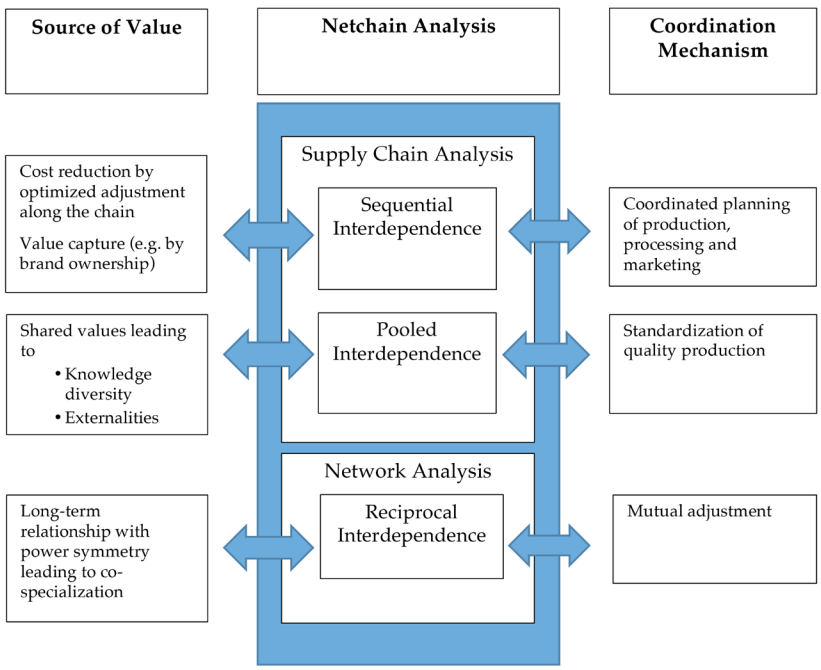
The Case Study

Material

Most of the field-level data collection for this case study was conducted in the frame of the Era-net EU-funded project 'HealthyGrowth: From Niche to Volume with Integrity and Trust' during 2014. However, it was substantially enriched by a case study conducted in a previous project, under the EU Sixth Framework Programme, 'Mountain Agrofood Products in Europe, their Consumers, Retailers and Local Initiatives, EuroMARC', which had been carried out between 2007 and 2010. Moreover, frequent casual interaction with the manager and the chairman of the cooperative over many years had already established a trustful relationship.

The case study is based on various qualitative survey methods, which were standardized within the HealthyGrowth project. First we collected publically available material, written or in the form of audio and video material. This included: a Vimeo clip, a video clip and written information on their webpage <http://www.bioalpin.at>, commercial clips on Youtube, their Facebook page, leaflets, several press releases in local media and brochures or flyers, which were placed for promotion at the

Figure 1. Framework for the analysis of values based netchains.



Note: adapted from Lazzarini et al. (2001, p. 14).

points of sale. This material gave a wealth of information about the self-representation of Bioalpin. Furthermore, it helped to develop a first stakeholder map indicating the configuration of the relationships among these stakeholders. In the next step, we selected key interview partners within the organization and along the chain. We conducted five interviews between May and December 2014. We interviewed the chairman and the manager of the cooperative as key persons, and furthermore conducted three interviews with actors along the dairy supply chain (representatives of farmers, processors and retailers). In addition we could draw on three interviews that had been conducted as part of the EuroMARC project during 2008. Together with these interviews, it allowed monitoring changes over a time span of 6–7 years. All interviews had been audio recorded and transcribed verbatim. An unpublished doctoral thesis (Schermer, 2003) and a diploma thesis (Steinlechner, 2009) contributed further details on the historical evolution of the cooperative and aspects of social sustainability. The cooperative Bioalpin itself provided a number of internal documents on organization and economic performance (turnover charts, minutes of meetings, founding protocol). These materials gave detailed insights into the structure of the supply chain organization. Finally, the opportunity to act as moderators of an internal workshop (31 January–1 February 2014), with the chairman, the manager, and three additional employees of Bioalpin, allowed specific further insights through participant observation. At this workshop, the five core responsible persons of the cooperative reflected on their visions and discussed strategic future development. The focus was on critical points in the supply chain (for instance, the regionality and transparency of sources for sugar or fruit mixtures in yoghurts), as the ethical standards of Bioalpin are well beyond the requirements of organic standards. The entire workshop had been audio recorded and was analysed later according to the questions and codes provided by the framework for the multi-perspectival analysis (Lamine and Noe, this issue)

In this article we focus on the relationships within the cooperative and the relation between Bioalpin and its major retail partner MPreis. The full case study report can be found on the homepage of the HealthyGrowth project (Furtschegger and Schermer, 2015.

A Brief Description of Bioalpin

The cooperative Bioalpin is the main marketing organization for organic products in the regional province of Tyrol, Austria. Bioalpin emerged in the early 2000s as a regional platform to bundle the products of organic farmers for supermarket sales. Austria has opted with the accession to the EU in 1995 to move towards quality food production to remain competitive. Thus it had supported the conversion to organic and positioned itself as the prime organic country in Europe (Eurostat, 2016). This resulted in the establishment of organic brands in virtually all major national retail chains (Schermer, 2015). Therefore the leading regional supermarket chain in Tyrol (MPreis) also considered establishing its own retailer-owned organic brand. However, MPreis realized soon that the level of consumer trust in a local farmers' cooperative would be even higher than in a supermarket brand (Schermer, 2003). Therefore, when Bioalpin was founded as a cooperative in 2002 with financial support by the regional government, MPreis supported Bioalpin to build up the competences necessary to supply them. Finally, Bioalpin registered Bio vom Berg as a producer brand owned by the cooperative.

MPreis, a family-owned retailer operating 260 stores in Tyrol and the adjacent provinces, is the most prominent supermarket chain in the region. Although a conventional supermarket chain, it tries to distinguish itself from national competitors by focusing on regional products and high-quality architecture of their stores.[1] Bioalpin as a provider of regional artisanal and organic products fitted perfectly into this differentiation strategy. MPreis became a strong and reliable partner for Bioalpin and they entered an almost symbiotic relationship.

MPreis committed to give preference to Bio vom Berg products over other organic brands. While MPreis offers approximately 1,000 organic products in total under various brands, they profile Bio vom Berg and take in products of other organic brands only if Bioalpin is not able to provide them. This preference exceeds pure short-term economic considerations and reflects the philosophy and values of this regionally rooted enterprise. In return, Bioalpin committed giving MPreis exclusive rights to Bio vom Berg branding, meaning the brand is not found in any other supermarket chain, but only in their alternative sales channels. Thus, the retailer accounts for a large share of the cooperative's turnover, while consumers often associate the brand Bio vom Berg entirely with MPreis.

Today, Bioalpin acts as a broker, aggregates organic products and mediates between farmers, processors and retailers with a lean organization structure. Five full-time equivalent staff (including the manager and secretariat) operate the firm. The cooperative organizes production, processing and logistics and negotiates price and quantities with their retail purchasing partners.

While initially only offering eight products (six dairy products and two meat products), the assortment has increased to approximately 130 currently. This includes milk and dairy products (cheese/yoghurt) as their backbone, but also items such as fruits and vegetables, eggs, cereals, fresh and processed meat, honey, and herbs. All products are sourced within the regional state of Tyrol. They are sold mainly in the region, but also in the adjacent regions in Germany and Italy. The gross sales of the cooperative developed from initially € 672 000 in the first year of operation (2003) to € 8.65 million in 2016. Annual growth is stable, averaging € 500 000 (Christoph Furtschegger, personal communication, 28 March 2017).

MPreis, with a share of about 60% of sales, remains the main partner. Other major sales channels include specialized organic wholesalers in Austria and Germany (10%), 'Zotter' – a famous Austrian artisanal chocolatier (6%) – as well as some smaller local shops/markets and a regional bakery. However, within supermarket chains the brand Bio vom Berg is used exclusively with MPreis. Currently, Bioalpin sells to other retail chains without using their brand. However, this accounts only for about 5% of the turnover. To reduce this dependency, the cooperative looks actively for additional appropriate partners. They try systematically to extend trade relations in the neighbouring regions of Italy and Germany.

On an active membership level, the cooperative comprises 49 members plus three silent shareholders. The active members include 11 small dairies (mostly local cooperatives), processors (like an organic butcher), producer groups (e.g. for fruit storage and processing) and a number of individual farmers. In total about 600 organic farms are affiliated with Bioalpin, including the members of the dairy cooperatives, representing more than one quarter of all organic producers in the province. In relation to the gross sales as stated above, the financial benefit for each single farm seems only marginal at first glance. However, many of the member farms operate on a part-time basis with off-farm employment. In addition, a substantial share of the

farm income comes from public payments for the provision of public goods, such as compensation for natural disadvantages[2] and agri-environmental programmes. Moreover, many farms do not use Bioalpin as their only sales channel, but engage into complementary direct-marketing activities. Still, Bioalpin serves as an important lever to sustain small-scale farming. Without the cooperative, many member farms would have no possibility to access indirect-marketing channels such as retail chains. Moreover, the situation for artisanal processing facilities (like the small, local, cheese-making dairy cooperatives) would be very critical. Thus, not only the financial benefit provided to the individual farm is crucial, but also the persistence of local processing and marketing structures required for artisanal food production. The constant increase in turnover of local organic products over the years underpins that there is a high interest of consumers into local organic food offered in the supermarket. The chairman of the cooperative sums up his vision as follows:

> 'A certified organic and local production is the most sensible way to produce food of incomparable quality in tune with traditional values. With our work, we sustain small-scale Tyrolean mountain farms for future generations and provide valuable, natural products from the region.' (Heinz Gstir, interview, 2014)

A Netchain Perspective on the Growth of Bioalpin

The following account examines the implications of network growth of Bioalpin on coordination mechanisms, as well as on the sources of value creation and capture. We use netchain (as depicted in Figure 1) as a guiding concept for analysing the pattern of growth and the distinct coordination mechanism associated with it. As we will demonstrate, this has specific implications on sources of value creation and capture.

The Multiplicative Pattern of Network Growth

Bioalpin is based on the concept of operating a brand that supplies a full range of products, while sourcing and processing remain within certain territorial boundaries. Starting from the dairy chain, they have diversified into production branches such as meat, grain, eggs, and vegetables. They are constantly working on product innovations and combining product lines in processing, such as production of noodles or breakfast cereals. This implies an extension of the network concerning production as well as processing, which in turn requires horizontal and vertical coordination.

In addition to new product diversity, volume demands within the product categories are constantly growing. This is because of the increase of outlets of the supermarket partner, but also due to the diversification of marketing channels pursued by the cooperative in order to increase autonomy. Associated with their value system, which places emphasis on the preservation of small-scale structures, they do not enforce the growth of the single supplier, but rather enlarge their network.

Network extension as the prime mode of growth for Bioalpin differs from the strategies applied in conventional supply chains. We name this 'multiplicative' growth, in contrast to the conventional 'additive' form. The term multiplicative growth is used in biology to denote growth by an increase of the number of cells, while addi-

tive growth means that more output is added in each unit of production. The latter is a typical pattern in economies of size where the effects of decreasing costs per unit are utilized by increasing the output and reducing at the same time the production costs per unit by mechanisms of specialization, rationalization and standardization (Rasmussen, 2013). As discussed earlier, the scope for utilizing these scale effects is particularly limited in mountain environments. Successful multiplicative growth requires specific modes of coordination, because compared to standard supply chain configurations, many more entities are involved in a strategic partnership.

Bioalpin forms the central hub for coordination upstream and downstream, as well as horizontally among producers or processors. As the organizational structure of the various supply chains differs to a great extent, various coordination mechanisms are applied. Our examples relate specifically to the egg, grain and dairy supply chains.

Currently the egg producer group comprises 10 small-scale organic member farms. Growth implies the multiplication of producers and coordination relates to a collective standardization of the production process, collective purchase of inputs, collective packaging, and so on.

The grain producer group consists of 22 farmers who grow traditional heritage varieties for specialty production in addition to the standard varieties of wheat, spelt and rye. Here, the cooperative had to develop entirely new local supply chains, identifying appropriate partners in processing and baking. This included a mill for the limited volume produced and an innovative bakery for the development of new products. Millers and bakeries are working on behalf of Bioalpin and sell the products under the brand Bio vom Berg.

The 10 local dairies are members of the cooperative. Their organizational set-up varies a lot. There are single farmers who act simultaneously as cheesemakers for their own milk, and there are several farmers who jointly operate a processing unit. There are farmers' cooperatives that pool their milk and sell to a dairy, and finally there are farmers' cooperatives in which farmers manage their own dairy. Some dairies are owned by a local primary cooperative, but rented to a private milk processor, while others are solely private enterprises. Bioalpin does not interfere with their internal set-up, but aims to coordinate the product range between the dairies. As some of them also process conventional milk, growth is achieved mainly by continuously increasing the share of organics. This includes marketing efforts, but also diversifying the product range and supporting co-specialization between the dairies.

Specific Horizontal and Vertical Coordination Mechanisms

In a horizontal perspective, the cooperative coordinates producers in order to pool their output to an extent that allows supply to supermarket chains. The pooled interdependencies involved in this form of coordination lead to a standardization of the product, such as uniform appearance through collective packaging and labeling with the Bio vom Berg brand. Egg producers, for example, are coordinated in this way into a producer group, which organizes packaging and labeling as well as the collective purchase of chicken feed. On top of necessary standardization of produce, producer groups allow the delegation of coordination to a spokesperson, who is communicating with the manager of Bioalpin on behalf of the entire group. In this way the higher transaction costs associated with an increase in the number of suppliers are reduced by the delegation of coordination to the head of the producer group.

Depending on the supply chain, the horizontal coordination may involve not only the aggregation of volumes, but also a complementary specialization. For instance, each dairy specializes in a limited variety of products, while the collective label of Bio vom Berg assembles many different cheeses. This creates the opportunity for each dairy to professionalize their operations and to develop specialized skills and knowledge. Since 2011 Bioalpin employs a specialist to support coordination and co-specialization between small dairies. Co-specialization may reduce competition between the dairies and allow creating a collective identity and feeling part of the federate cooperative.

Sequential interdependencies coordinate the vertical layers along the supply chain. They govern the planning of volumes and product range and make planned product innovation possible. MPreis transmits consumer demand for a new product to Bioalpin and proposes the creation of a new breakfast cereal. Then Bioalpin has to find farmers to grow the respective grain variety, organize processing, logistics, labeling and packaging, run first some test markets of MPreis and then, if successful, extend production to supply the entire supermarket chain. Thus, Bioalpin needs to plan in a rather long time in advance and to forge stable partnerships along the supply chain. Partners have to fit with regard to, for instance, the appropriate size of processing infrastructure. In the cereal supply chain, the producer group needs an appropriate miller to provide flour in limited quantities for a bakery to produce a regional specialty. Selecting such processing partnerships is informed by similar structural requirements as well as by mutually shared values. Often this goes hand in hand and millers of an appropriate scale, who can deal with the small quantities of grain required by Bioalpin and small-scale bakeries, producing artisanal bread specialties, may share similar structural limitations, ideological values and marketing approaches.

Bioalpin aims to engage into long-term, trust-based partnerships with such like-minded partners, which leads to a deep and respectful knowledge about mutual requirements, creative leeway and flexibility. Creativity at the level of processing is often required if unexpected events happen in production. For example, if there is excess production of pumpkins, the bakery should be flexible enough and willing to produce pumpkin bread. Adequate partnerships facilitate product innovation and development. If the retailer wants to introduce a new product, sometimes experiments with production technologies under organic conditions are required. Often new producers must be recruited, sometimes even involving conversion to organic first. Considering a conversion period of two years, this implies long-term planning, which is only feasible if the relationships promise longevity. In turn, such long-term partnerships result in intimate knowledge about the requirements and structural limitations of partners on both sides.

Starting point for the cooperation between Bioaplin and MPreis was a basic common interest in the marketing of regional organic products. As the manager of Bioalpin stated in 2008:

> 'There has to be an interest in marketing jointly and a mutual desire to specialize in this marketing segment. Without that, it would get really difficult and challenging for most of the products, be it on the level of customers, retailers or producers.' (Interview, 2008)

Initially MPreis supported Bioalpin strongly and gave preference to them compared to other suppliers. As the buyer of MPreis recalled:

> 'The first two to three years were very intense and there was invaluable assistance… There were times where, for months, we were in contact several times a day and that is exceptional. There are suppliers with whom I make twice as much turnover and with whom I speak three times a year.' (Interview, 2008).

In the long run, MPreis benefited from the positive image of Bio vom Berg as the most important organic brand in the region and its exclusive association with it. Without Bioalpin aggregating artisanal producers, MPreis would not be able to offer a unique regional organic line of products.

The long-term relationships justify the initial transaction costs involved. As our comparative analysis of all cases conducted in the frame of HealthyGrowth testified, over time, communication becomes more routinized, trust-based, and therefore less frequent. Thus close, long-term, reciprocal relations may help to reduce the initial high transaction costs (Furtschegger et al., 2016).

The Bioalpin network assembles many members from different backgrounds. Management supports mutual learning processes through training courses and exchanging experiences. Farmers are undertaking guided tours of supermarkets, and employees of the supermarket chain are visiting farms. The increased knowledge about specific features, mutual requirements and structural limitations of partners provides space for complementary co-specialization of knowledge and competences as a basis for value creation. This relates especially to the division of tasks along the chain. In contrast to direct marketing, farmers can specialize in production processes, relying on dedicated processors and retailers to transform and transmit the special quality features to the consumer. This allows some sort of identification of primary producers with the final product even in indirect marketing channels.

Creation of Economic Value through Shared Non-economic Values

From the perspective of supply chain analysis, value creation is a result of coordinating sequential interdependencies to minimize transaction costs by planning and negotiating volumes and prices. This provides stability for each unit, resulting in cost reduction by optimization of production and processing operations. In our case, each farm or processing unit must optimize and balance the different factors for production. Constant fine-tuning of labour requirements, capital investment for mechanization, available land and animal resources, and physical infrastructure for production provides the basis for an optimized cost structure at the farm level. In addition, especially in organic systems, the circular flow of nutrients and materials safeguards long-term resilience. In turn, horizontal and vertical coordination of many small producers and processors by Bioalpin provides more stability for the retail partner and allows them to negotiate with one partner only.

Long-term trust-based relationships provide not only stability but also a common set of non-economic values, shared by all partners, which forms the basic source for creating economic value. For instance, the long-term reciprocal partnership of dedicated partners leads to a similar understanding of quality aspects. This was demonstrated when we asked (during the EuroMARC-project) different actors along a particular dairy chain (farmers, processors, cooperative leaders, retail partners) which factors they thought determined the quality of mountain cheese. To our astonishment, they all referred to very similar features such as artisanal production methods,

old dairy breeds and the biodiversity in mountain pastures. Such close similarities in quality appreciation do not come by chance; they are a result of long-term relationships with a great deal of mutual appreciation. According to the manager of Bioalpin, successful partnerships only emerge if they are mutually beneficial:

> 'Business relationships are like intimate personal relationships. It's only going to result in something positive if it is a mutual partnership. A unilateral or one-sided relationship is not productive in my understanding; it's always about the personal and private matters. It happens between people. Developing sympathy is very important.' (Interview, 2008)

This explanation perfectly matches his comments six years later, when he adds:

> 'While all their retail partners have to be interested in a real partnership, it takes time to establish sympathy in a relationship.' (Interview, 2014)

In the end this personal empathy may translate into economic results. As the manager of the cooperative describes:

> 'There are simply people who, due to certain reasons, like what you are doing. Be it the products or how you conduct your business. And there are chains that are able to reflect this in a higher price level.' (Interview, 2014)

Collectively shared values about the unique qualities of a product allow creation of added value through product differentiation. The notion of artisanal production on small farms located in a largely unspoiled natural environment and in regional proximity, using organic cultivation methods, provides a bundle of qualities that may be translated into value-adding stories of people, land, and practices. The commercials of Bioalpin, shown regularly at arthouse cinemas, provide examples of such storytelling. Farmers can be seen saying why they think their products are special; they speak in their regional dialect and use their talk in an authentic language about their products. Such personal statements underpin the regional embeddedness of the brand, which may justify higher consumer prices. Bioalpin supports communication of values or quality characteristics attached to products through all stages of transformation and handling until the shelf in the shop. Such values/qualities may relate to general features of organic, local, artisanal, small-scale production and processing or specific production features such as hay feeding or the increased content of omega-3 fatty acids when feeding hay from high altitude meadows.

However, as networks differentiate and widen, messages become more complex. Hardesty et al. (2014) underline the importance of communication in their analysis of VBFCs in California. They cite problems of conveying the meaning of specific terms (such as 'grass-fed') to consumers and the challenge to maintain the message throughout the supply chain. Contrary to direct marketing, the number of intermediaries makes it difficult to 'tell the story'. Hardesty et al. (2014) suggest therefore classifying VBFC products as 'education intensive' (after Kotler and Keller, 2011), due to the intangible nature of many environmental, social and economic benefits. In order to experience such benefits more closely, Bioalpin organizes field visits for farmers and consumers as well as joint excursion for farmers and retailer employees, to foster mutual learning about quality aspects.

Value Capture through Cooperative Structure

While communicating values attached to products creates or increases the economic

value, the values embedded into relationships safeguard the equal capture and distribution of the profit. As already stated, Stevenson et al. (2011) postulate that in VBFCs there are neither price takers nor price setters, but partners who negotiate prices at eye level.

The purchaser of MPreis describes the relationships as follows:

> 'The relationship is really fair, collaborative and mutually open, which is completely uncommon for the retailing side, but we see this being necessary to sustain the brand. Our relationship was strongly shaped due to the intense engagement and support in the first years.' (Interview, 2008)

Bioalpin negotiates prices with MPreis based on cost calculations, agreeing on fair revenue sharing. Apart from cheese and dairy products, MPreis also agrees with Bioalpin on a fixed yearly price for products like apples, eggs or grain.

> 'That is quite exceptional, especially with apples where usually you have weekly prices. It has to do with the structure of Bio vom Berg and the broad variety of products that get marketed via MPreis. By the time it got to be common sense somehow to agree, it became "OK, that's simply the prize we set for now for this product".' (Interview, 2008)

Needless to say, this has huge advantages for the cooperative's suppliers who have a higher planning security. But fair negotiations and agreements require equal power relations. This can be attributed to the cooperative structure of Bioalpin. Extensive horizontal and vertical coordination among the diverse group of producers in the Tyrol region, along with the opportunities for multiplicative growth, would not be present if Bioalpin did operate as a cooperative with shared profits and shared decision-making. As a matter of fact in the founding days there was a lengthy discussion about how Bioalpin should be organized. The first business consultant, who was hired to establish Bioaplin, suggested a limited liability company, argueing that cooperatives were too slow at decision-making. The founding members, however, opted for the cooperative organization. For one, since it was a traditional form for agricultural organization and they were familiar with it, but also since they knew that this would secure ownership in the hands of the farmers. With hindsight, the president of the cooperative has stated repeatedly that the cooperative structure has prevented them from being bought out by the retail partner, because the producers/processors as members of Bioalpin control the use of the brand and make their mandatory collective decisions in the general assembly. As Bioalpin owns the Bio vom Berg brand, which consumers associate closely with the retailer, the supermarket chain cannot easily replace the cooperative with another (cheaper) supplier. Ownership of the brand by the federated cooperative is crucial to maintain power symmetry with the retail partner. Ultimately, it led to the agreement with MPreis to prefer Bio vom Berg products over other organic brands, which reduces financial risk for the cooperative and its members considerably and provides the basis for long-term joint product development.

Arguably, a federated cooperative structure provides the best mechanisms for simultaneous strong horizontal and vertical coordination of an entire supply chain (Gray, 2009). Federated cooperatives consist of local cooperatives (in our case the local dairies), which in turn are members of a regional cooperative (in our case Bioalpin). This helps to reduce the transaction costs usually involved in dealing with a high number of small-scale producers. Lazzarini et al. (2001) present federated

cooperatives as one example of netchains that are characterized by the simultaneous presence of pooled, sequential and/or reciprocal relationships. Such cooperative structures aggregate the production volume of many producers and organize the processing of primary products for their members. In addition, cooperatives form a social group with a collective spirit, due to the close personal relationships on horizontal and vertical levels. In our case study, this structure allows Bioalpin operating as the central coordinating actor.

Opportunities and Challenges of Multiplicative Growth in Values-based Netchains

Multiplicative growth is associated with several preconditions and challenges. Long-term relationships may reduce transaction costs due to higher levels of trust but, at the same time, the multiplication of actors involved increases coordination costs (Talamini and Ferreira, 2010). The aim of the cooperative Bioalpin is not maximizing profit for the organization itself, but improving conditions for all members. Thus the first goal is to balance increased coordination costs with reduced transaction costs. The constant extension of the network provides the basis for growth in turnover, which in turn is required for the professionalization of the central hub (Bioalpin itself) and its services. Until now, the organization has been kept rather lean, but it is growing constantly. New personnel are hired based on projects initially supported with public money. In the main this support is reduced gradually over a period of three years, after which costs must be financed from increased turnover.

Providing long-term relationships and coordination increases stability for all partners in the network and enlarges the planning horizon. They are, at least to some extent, relieved from the pressure to get big or get out. This allows optimization processes within the single unit of production /processing and prevents loss of resource balance. It takes the focus away from the constant need to realign resources. In values-based netchains, where the collective spirit manifests itself in a set of shared values, independent enterprises shift from relationships of competition to coordinated action with an open exchange of experiences.

Besides these economic benefits, integration into a dynamic network with good public standing fosters the identification of producers in indirect supply chains. Especially in the situation of small-scale and often pluri-active mountain farms, added economic value is not essential for survival as a large amount of income comes from public transfer payments and/or from off-farm employment. However, product identification and sources of positive feedback are crucial for the motivation to continue farming in intergenerational handover processes. In particular, the collectively shared non-economic values provide a source for wider network externalities. These values impact on economic, social and environmental dimensions of sustainability.

Regionally oriented values-based netchains provide a reliable and trusted combination of organic and local/regional production, complying with widespread consumer expectations (Rigby and Brown, 2003).

The focus on network growth increases product differentiation, which adds to the diversification of farming systems. Artisanal quality often relies on the revalorization of traditional varieties and production methods, at the same time increasing agro-biodiversity. The traditional production methods may even preserve otherwise abandoned elements of cultural landscapes and maintain their aesthetic value. This may be of special interest in regions relying on tourism for their economy.

However, network growth is associated with a number of challenges. New partners at the level of processing and retailing must be selected consciously and carefully. One criterion is congruence of the value systems. A network of like-minded enterprises is crucial to communicate the qualities attached to the various products from producer to consumer. This selection process is not always planned in advance; new partnerships are often entered into by coincidence, when an opportunity presents itself.

In addition to a shared understanding of core values, structural compatibility is also a major selection criterion. This relates to the volume produced, processed or handled as already exemplified in the cereal chain, where it was difficult to find a mill that is able to handle the limited quantities. In addition to matching quantities, a partner's share in the total turnover should be substantial enough to maintain a high level of interest in the further development of the initiative.

In addition to selecting suitable partners, balancing coherence of values with market requirements is not always an easy task. In our case study the internal workshop revealed some critical issues. For instance, some of the ingredients in compound products are of a generic source of which ensuring traceability is difficult. One example is fruit yoghurt, where the dairy due to cost considerations sources sugar and fruit mixture from the global (organic) market. The value system of Bioalpin favours regional origin and in cases where this is not possible requires fair labour conditions, traceability and price relations on top of organic production standards. However, it is difficult to gain full transparency over all components, let alone to know exactly production conditions.

Finally, integrating new producers into the value system requires substantial efforts of internal communication. The analysis of different cases within the Healthy-Growth project revealed that communication becomes increasingly formalized and routinized and personal exchanges are reduced as a consequence of growth. This may pose a challenge for familiarizing new members with the value system. Bioalpin tries to counterbalance this by establishing producer groups where new members will find a group of like-minded colleagues.

Conclusions

While economic considerations may favour economies of scale, social and environmental arguments may support the establishment of local and regional values-based netchains. Our case exemplifies how regionally anchored values-based netchains may contribute to positive societal externalities and rural development. The creation of a dense network of dedicated producers and processors is an important prerequisite for a vibrant countryside. Ultimately, artisanal product diversification, local processing and marketing have positive effects on the resilience of rural communities (Marsden, 2010; Schäfer et al., 2016). A recent report by King et al. (2010) provides data that illustrate how local supply chains may reduce food miles in comparison to mainstream conventional chains. However, while food miles are obviously lowest in direct marketing, due to the low volume transport, the fuel consumption per unit may exceed even conventional lines. Intermediate supply chains, like the ones of Bioalpin may combine both indicators most favourably. The case study of Bioalpin provides a good example of a supply chain that transgresses the limits of short food supply chains but focuses on preserving small-scale structures in production and processing.

By favouring multiplicative growth, the initiative takes the dilemma of 'get big or get out' away from small-scale producers and processors. The members of this network share a common set of values in three ways: they have the same conception of product quality, based on traditional production methods; they share mutually respectful, trustful and open long-term relationships; and they have a similar understanding of contributing to a sustainable future by re-localizing the agri-food system.

However, the case also demonstrates that multiplicative growth in extended values-based netchains relies on a strong central hub, which bundles the interests of the small-scale producers and processors against the retail partner. The federated cooperative structure of this central hub and the brand ownership are important assets in order to retain power symmetry. The major challenge is to balance the increased coordination and communication requirements with a reduction of transaction costs through long-term relationships based on shared values and trust. In multiplicative growth processes, internal communication is crucial to socialize new partners into the values of the network. Furthermore, the complex structure of the values involved requires increased communication efforts towards the consumers in order to convey the stories behind the products. Concentration on non-economic values and the constant extension of the network inherent to multiplicative growth requires a constant reflection and renegotiation. At the same time it may provide a basis for a more sustainable mode of growth.

Notes

1. Their homepage <http://www.mpreis.at> lists nature and regionality as their prime values followed by architecture and design, and quality and price. Further values include: man and work, family and tradition, communication and meeting and variety and diversity.
2. In accordance with EU regulations, the Austrian government provides payments to level out production difficulties due to natural constraints such as steepness of the terrain or remoteness from infrastructure. These payments are aimed to support the multifunctional benefits generated by farms beyond agricultural production.

References:

AMI (Agrarmarkt Informations-Gesellschaft) (2014) *Marktbilanz Ökolandbau 2014*. Bonn: AMI.

Butler, D. (2006) *Enterprise Planning and Development: Small Business Start-up Survival and Growth*. New York: Routledge.

Coleman, J. (1988) Social capital in the creation of human capital, *American Journal of Sociology*, 94, pp. S95–S120.

Darnhofer, I., Lindenthal, T., Bartel-Kratochvil, R. and Zollitsch, W. (2010) Conventionalisation of organic farming practices: from structural criteria towards an assessment based on organic principles. A review, *Agronomy for Sustainable Development*, 30(1), pp. 67–81.

Duffy, M. (2009) Economies of size in production agriculture, *Journal of Hunger and Environmental Nutrition*, 4(3–4), pp. 375–392.

EIP-AGRI (European Innovation Partnership for Agricultural Productivity and Sustainability) (2015) *EIP-AGRI Focus Group Innovative Short Food Supply Chain Management: Final Report*. Brussels: EIP-AGRI. <https://ec.europa.eu/eip/agriculture/sites/agri-eip/files/eip-agri_fg_innovative_food_supply_chain_management_final_report_2015_en.pdf>.

Eurostat (2016) *Organic Crop Area on the Rise in the EU: Two Million Hectares More since 2010*, Eurostat Newsrelease 208/2016. Luxembourg: Eurostat Press Office. <http://ec.europa.eu/eurostat/documents/2995521/7709498/5-25102016-BP-EN.pdf>.

Freyer, B. (2009) Die ökologische Landwirtschaft zwischen gesellschaftlichen Trends und der eigenen Identitätsfindung, in: P.C. Gruber (ed.) *Die Zukunft der Landwirtschaft ist biologisch! Welthunger, Agrarpolitik und Menschenrechte*. Opladen: Verlag Barbara Budrich pp. 95–126.

Freyer, B. (ed.) (2016) *Ökologischer Landbau. Grundlagen, Wissensstand und Herausforderungen*. Bern: UTB Haupt Verlag.

Furtschegger, C. and Schermer, M. (2015) *Bio vom Berg – Austria: Full Case Study Report*. Aarhus: HealthyGrowth. <http://projects.au.dk/fileadmin/projects/healthygrowth/Case_Study_reports/Report_Austria_BiovomBerg.pdf>.

Furtschegger, C., Schermer, M., Borec, A. and Prisenk, J. (2016) *How Is the Communication of Values, Qualities, and Motivations Supported along the Value Chain from Producer to Consumer and Vice Versa?*, HealthyGrowth WP5: Task 4 Report – Communication. Aarhus: HealthyGrowth. <http://projects.au.dk/fileadmin/projects/healthygrowth/Task_Reports/Task4_FinalVersion.pdf>.

Granovetter, M. (1985) Economic action and social structure: the problem of embeddedness, *American Journal of Sociology*, 91(3), pp. 481–510.

Gray, T. (2009) *Selecting a Cooperative Membership Structure for the Agriculture-of-the-Middle Initiative*, Research Report 216. Washington, DC: United States Department of Agriculture. <http://www.rd.usda.gov/files/rr216.pdf>.

Guthman, J. (2014) *Agrarian Dreams: The Paradox of Organic Farming in California*. Berkeley: CA: University of California Press.

Hanf, H. and Pienadz, A. (2009) Quality managment in Polish dairy cooperatives, in: M. Canavari, N. Cantore, A. Castellini, E. Pignatti and R. Spadoni (eds) *International Marketing and Trade of Quality Food Products*. Wageningen: Wageningen Academic Publishers, pp. 185–200.

Hardesty, S., Feenstra, G., Visher, D., Lerman, T., Thilman-McFadden, D., Gilpatric, T. and Nurse Rainbolt, G. (2014) Values-based supply chains: supporting regional food and farms, *Economic Development Quarterly*, 28(1), pp.7–17.

HealthyGrowth (2017) *Case Study and Fact Sheets*. Aarhus: HealthyGrowth. <http://projects.au.dk/healthygrowth/case-study-and-fact-sheets/>.

King, R., Hand, M., DiGiacomo, G., Clancy, K., Gómez, M., Hardesty, S., Lev, L. and McLaughlin, E. (2010) *Comparing the Structure, Size, and Performance of Local and Mainstream Food Supply Chains Economic*, Research Report 99. Washington, DC: United States Department of Agriculture.

Knickel, K., Jahn, G., Roep, D. and Wiskerke, H. (2006) Enhancing sustainable food supply chain initiatives, in: D. Roep and H. Wiskerke (eds) *Nourishing Networks: Fourteen Lessons about Creating Sustainable Food Supply Systems*. Doetinchem: Reed Business Information, pp. 165–175.

Knickel, K., Zerger, C., Jahn, G. and Renting, H. (2008) Limiting and enabling factors of collective farmers' marketing initiatives: results of a comparative analysis of the situation and trends in 10 European countries, *Journal of Hunger and Environmental Nutrition*, 3(2–3), pp. 247–269.

Kotler, P. and Keller, K. (2011) *Marketing Management*, 14th edn. Upper Saddle River, NJ: Prentice Hall.

Ilbery, B. and Kneafsey, M. (2000) Producer constructions of quality in regional speciality food production: a case study from south west England, *Journal of Rural Studies*, 16(2), pp. 217–230.

Landwirtschaftskammer Tirol (2014) *Tirols Land- und Forstwirtschaft in Zahlen*. Innsbruck: Landwirtschaftskammer Tirol <https://tirol.lko.at/?+Tirols-Land-und-Forstwirtschaft-in-Zahlen+&id=2500,2245359>.

Lazzarini, S., Chaddad, F. and Cook, M. (2001) Integrating supply chain and network analyses: the study of netchains, *Journal of Chain and Network Science*, 1(1), pp. 7–22.

Lyson, T., Stevenson, G.W. and Welsh, R. (2008) *Food and the Mid-Level Farm: Renewing an Agriculture of the Middle*. Cambridge, MA: MIT Press.

Marsden, T. (2010) Mobilizing the regional eco-economy: evolving webs of agri-food and rural development in the UK, *Cambridge Journal of Regions, Economy and Society*, 3(2), pp. 225–244.

McKitterick, L., Quinn, B., McAdam, R. and Dunn, A. (2016) Innovation networks and the institutional actor-producer relationship in rural areas: the context of artisan food production, *Journal of Rural Studies*, 48, pp. 41–52.

Mendola, M. (2007) Farm household production theories: a review of 'institutional' and 'behavioral' responses, *Asian Development Review*, 24(1), pp. 49–68.

Megyesi, B., Egyese, B., Kelemen, E. and Schermer, M. (2011) Social capital as a success factor for collective farmers marketing initiatives, *International Journal of Sociology of Agriculture and Food*, 18(1), pp. 89–103.

Mount, P. (2012) Growing local food: scale and local food systems governance, *Agriculture and Human Values*, 29(1), pp. 107–121.

Murdoch, J. (2000) Networks: a new paradigm of rural development?, *Journal of Rural Studies*, 16(4), pp. 407–419.

Nijhoff-Savvaki, R., Trienekens, J. and Omta, O. (2012) Building viable and sustainable regional netchains: case studies of regional pork netchains in Spain, Germany and The Netherlands, *International Journal on Food System Dynamics*, 3(1), pp. 50–60.

Pirog, R. and Bregendahl, C. (2012) *Creating Change in the Food System: The Role of Regional Food Networks in Iowa*. East Lansing, MI: MSU Centre for Regional Food Systems. <http://foodsystems.msu.edu/

uploads/files/resources/creating-change.pdf>.
Polanyi, K. (2001) *The Great Transformation: The Political and Economic Origins of Our Time*, 2nd edn. Boston: Beacon Press.
Rigby, D. and Brown, S. (2003) *Organic Food and Global Trade: Is the Market Delivering Agricultural Sustainability?*, School of Economics Discussion Paper Series 0326. Manchester: University of Manchester.
Rasmussen, S. (2013) *Production Economics: The Basic Theory of Production Optimisation*. Berlin: Springer-Verlag.
Schäfer, M., Nölting, B. and Schermer, M. (2016) Regionale Entwicklung, in: B. Freyer (ed.) *Ökologischer Landbau. Grundlagen, Wissensstand und Herausforderungen*. Bern: UTB Haupt Verlag, pp. 205–217.
Schermer, M. (2003) *Bauer, Power, Bioregion*. Ph.D. thesis, University of Innsbruck. <http://orgprints.org/7074/1/Bauer-Power-Bioregion_end.pdf>.
Schermer, M. (2015) From 'food from nowhere' to 'food from here': changing producer–consumer relations in Austria, *Agriculture and Human Values*, 32(1), pp. 121–132.
Schermer, M., Renting, H. and Oostindie, H. (2011) Collective farmers' marketing initiatives in Europe: diversity, contextuality and dynamics, *International Journal of Sociology of Agriculture and Food*, 18(1), pp. 1–11.
Sjölander-Lindqvist, A. and Cinque, S. (2014) Locality management through cultural diversity, *Food, Culture and Society*, 17(1), pp. 143–160.
Steinlechner, M. (2009) *Die Bedeutung von Fairness und sozialer Nachhaltigkeit für die Vermarktung von Bio-Milchprodukten*. Diploma thesis, University of Innsbruck.
Stevenson, G.W. and Pirog, R. (2008) Values-based supply chains: strategies for agrifood enterprises of the middle, in: T. Lyson, G.W. Stevenson and R. Welsh (eds) *Food and the Mid-Level Farm: Renewing an Agriculture of the Middle*. Cambridge, MA: MIT Press, pp. 119–143.
Stevenson, G.W., Clancy, K., King, R., Lev, L., Ostrom, M. and Smith, S. (2011) Midscale food value chains: an introduction, *Journal of Agriculture, Food Systems, and Community Development*, 1(4), pp. 27–34.
Storer, C., Holmen, E. and Pedersen, A. (2003) Exploration of customer horizons to measure understanding of netchains, *Supply Chain Management*, 8(5), pp. 455–466.
Streifeneder, T. (2010) *Die Agrarstrukturen in den Alpen und ihre Entwicklung unter Berücksichtigung ihrer Bestimmungsgründe. Eine alpenweite Untersuchung anhand von Gemeindedaten*. München: Herbert Utz Verlag.
Talamini, E. and Ferreira, G. (2010) Merging netchain and social network: introducing the social netchain as a analytical framework in the agribusiness sector, *African Journal of Business Management*, 4(13), pp. 2981–2993.
Tregear, A., Arfini, F., Giovanni, B. and Marescotti, A. (2007) Regional foods and rural development: the role of product qualification, *Journal of Rural Studies*, 23(1), pp. 12-22.
Willer, H. and Lernoud, J. (eds) (2015) *The World of Organic Agriculture: Statistics and Emerging Trends 2015*. Frick: Research Institute of Organic Agriculture and Bonn: IFOAM – Organics International.
Woolcock, M. (1998) Social capital and economic development: toward a theoretical synthesis and policy framework, *Theory and Society*, 27(2), pp. 151–208.