The potential of bio certification to strengthen the market position of food producers

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Abstract

Purpose – The purpose of the paper is to critically evaluate the applicability of bio certification in farmers' activity to reduce unfair trading practices in the food supply chain. The secondary purposes are describing the economic reasons of using bio certification and perspectives of using web trading platforms among food producers.

Design/methodology/approach – Data collection included face-to-face interviews with 15 Austrian and German farmers who operate on bio food markets as well as a quantitative survey regarding their assessment of unfair trading practices. This study presents both quantitative and qualitative analyses.

Findings – Bio certification is more likely unable to eliminate or mitigate unfair trading practices in the food supply chain, however bio certification is able to increase efficiency of farmers together with other web tools.

Originality/value – The study is the first to empirically investigate the applicability of bio certifications, its advantages and impact on unfair trading practices in the food supply chain. It focuses on small and medium-sized food producers and farmers. The research also reveals the perspectives of using web trading platforms in farming activity.

Keywords Unfair trading practices, Food supply chain, Bio certification, Fairtrade, Fair trade, Trading platforms, Food producers, Survey

Paper type Research paper

1. Introduction

A food supply chain comprises all activities which move food items from a primary producer to consumers. Usually, food supply chains are a combination of sequential activities which connect all production and distribution activities ranging from the planning of food production by farmers to the final consumption. Within modern food supply chains, food producers tend to be most vulnerable to the impact of unfair trading practices (UTPs), which have a severe negative impact on business-to-business relationships (Abdollah Dehdashti, 2018; Schebesta *et al.*, 2018). Among food product manufacturers, small and medium-sized enterprises (SMEs) account for 43% of the traded value. In terms of trade export value, SMEs' accounted for 81% in agriculture, forestry and fishing in 2016 (Eurostat, 2020). These enterprises lose on average 2.27% of their annual turnover due to various kinds of UTPs (Kononets and Qineti, 2020).

According to the European Commission (2014), UTPs are business-to-business practices that deviate from good commercial conduct, are contrary to good faith and fair dealing and

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are unilaterally imposed by one trading partner on another. Many such practices occur in the food supply chain, whose functioning is essential for human well-being. Improper handling of food stuffs can cause severe health issues (Hafliðason *et al.*, 2012; Ringsberg, 2014) or economic losses (Fernando *et al.*, 2019). Frequently, UTPs are caused by unequal bargaining power leading to commercial practices that are unjust, unfair or undesirable from an economic, social or political point of view (Falkowski *et al.*, 2017; European Commission, 2009). Such practices may occur at each step of the food chain and include, for example, late or upfront payments, order cancellations or unilateral changes in contracts. A major problem for small food producers is that they usually contract with large retailer groups who have better access to consumers, indicating severe power asymmetries in the food supply chain (Madichie and Yamoah, 2017).

In 2017, an open public consultation (OPC) took place regarding the issue of unfair trade among various stakeholders, including farmers and farming organizations, member state authorities, nongovernmental organizations, food processors and retailers. In total, 91% of participants agreed that UTPs exist in the food supply chain and 76% stated that UTPs have a negative impact on the industry (Valletti, 2018). SMEs acknowledge a strong pressure from the side of large companies due to unevenly distributed bargaining power and information asymmetry along the entire food supply chain (Sun and Wang, 2019). This asymmetry causes UTPs that lead to contractual imbalances which benefit the more powerful partner through better contractual conditions (European Commission, 2009).

The huge losses caused by UTPs through complex interrelated economic activities can take the form of lost profits, unnecessary expenses, spoiled or unsold goods and waste of time. Practical solutions are therefore needed to remedy this pain point of the food industry. To date, the negative impact of UTPs is rarely discussed in the academic literature. Therefore, in our research, we investigate whether certifications or direct sales can eliminate or at least mitigate the problem of UTPs for SMEs and help to increase the efficiency of small producers in the food supply chain. More specifically, we pose the following research questions:

(1) To what extent can bio certification and web-based trading platforms help producers in the food supply chain to mitigate the effect of UTPs and strengthen their market position?

(2) What are the reasons hindering the widespread use of bio certification programs and web platforms among farmers?

This paper is organized as follows: First, we present two different types of certifications and various UTPs. Next, we briefly discuss our methodological approach, followed by the core of this paper in which we discuss the quantitative and qualitative findings from our study. Summarizing the findings from our qualitative study, we suggest some research questions for further investigation. We end our article with several conclusions and some limitations.

2. Certifications and unfair trading practices

In recent years, there are increasing efforts to improve supply chains by implementing green supply management practices in order to improve companies' environmental performance (Zhu *et al.*, 2019) or to ensure markets that provide fair conditions for all participants (Qian *et al.*, 2020). In this respect, organic products were shown to have a huge market potential (Bazaluk *et al.*, 2020), and certification was introduced as a tool that can improve sustainability (Whelan, 2015), which in turn positively impacts a company's competitive advantage (Rajesh, 2020). In the following sections, we briefly present two different kind of

certifications, namely Fairtrade and bio certifications, elaborate on their respective goals and introduce several UTPs that are relevant for food supply chains.

2.1 Fairtrade certifications

As of 2016, 1,411 producer organizations in 73 developing countries were certified by Fairtrade, representing over 1.66m farmers and workers. Fairtrade International started with coffee and, over time, has extended the range of certifications to different kinds of fruits, vegetables, berries and meat. The basic benefits of a Fairtrade certification for an SME food producer include a guaranteed minimum price, an additional premium on top of the market price for their investment in social and environmental projects, an advance to reduce the stress of selling their product under pressure and a commitment to minimize intermediaries in the supply chain (Fairtrade International, 2019).

The main organization behind the certification is the World Fair Trade Organization. Private seals for promoting fair trade are also issued by Fairtrade International, GEPA, UTZ and the Rainforest Alliance. Fairtrade standards contain minimum requirements that all producer organizations must meet to become certified as well as progress requirements that oblige producers to demonstrate improvements over time. To become certified Fairtrade producers, cooperatives and their member farmers must operate according to standards laid down by Fairtrade International.

Fairtrade certification especially focusses on the sustainable development of territories, protects the labor force from unjust exploitation, which includes gender equity and the restriction of child labor, ensures that farmers get a fair remuneration for their work, promotes direct trading, helps to eliminate unnecessary intermediaries and regulates the use of chemical pesticides in the cultivation of crops. Several types of Fairtrade standards exist, including standards for contractual situations specifically for importers, which cover a wide range of different products (Fairtrade International, 2011). Fairtrade standards for small farmers' organizations also include requirements for democratic decision-making, so that farmers have a say in how Fairtrade premiums are invested. This also includes requirements for capacity building and the economic strengthening of the Fairtrade organization. FLOCERT is the audit and certification body ensuring that both producers and traders meet Fairtrade standards and its inspections and certifications follow the international ISO standards for product certification entities (FLOCERT, 2020).

2.2 Bio certifications

In the perception of many consumers, organic and fair trade certifications are more or less identical (Bulut, 2010). While both certifications aim at ethical goals, "organic" sets standards for agricultural methods and the use of natural resources whereas fair trade pertains to trade and working conditions. Organic production and fair trade have separate certification processes, although the underlying principles are similar and strive to achieve an ethically responsible food production. Some organic certifiers include rules about social sustainability in their certification, such as the Swedish organization KRAV. Bio certification deals with healthy food growing, organic methods of crop cultivation, reasonable water and energy use and controls farmers' seeds.

The European Union regulates organic certification with norms EC 834/2007 and EC 889/2008 for operators (i.e. farmers, processors, traders, importers) willing to obtain an EU organic certification seal for their products and production facilities. The acquisition of all general EU certifications is shown through the EU logo, which is widely known as the Euro-leaf. The head certification body that deals with EU certification through certification agents within Europe is the European Organic Certifier Council (EOCC).

In addition to EU organic certification, other national and local bio certification seals are owned by government or private certification bodies. Austria has, amongst others, AMA, Bio Austria, Demeter International, Austria Bio Garantie, Erde and Saat and the Lacon Institut seal. The biggest market of bio certifications is in Germany. To this day, Germany remains one of Europe's leading countries in terms of both acreage and total number of farms devoted to organic farming practices. As of 2018, 31,713, organic farms ("Biohöfe"), 12% of all farms in Germany managed over 3.75m acres (1.52m ha), or 9.1% of farmland in adhering to organic standards (Federal Ministry of Food and Agriculture in Germany, 2020). Germany has also played a pioneering role in the history of organic farming. In fact, the organic food movement was started in Germany in the early 1920s, when Rudolf Steiner created a form of organic farming known as bio-dynamic agriculture (Von Friedeburg, 2018) but in the meantime has gained worldwide attraction (Niederle *et al.*, 2020). In Austria about 26% of the total agricultural area and 22% of all farms used organic management in 2019 (Federal Ministry of Agriculture, Regions and Tourism in Austria, 2020), which is among the highest rates in the EU.

2.3 Certification goals

Both Fairtrade and bio certifications motivate SME food producers to pursue a fair and sustainable production with the goals of generating higher incomes for farmers, a better production efficiency and more sustainable production processes (Furumo *et al.*, 2020). For example, the German private certification seal "Kreis" has two commercial labels that target the respective goals separately, namely the bio seal "Bio Kreis" and the Fairtrade seal "regional and fair". According to Biokreis.de, "regional and fair" is the organic seal for processing and trading companies, beekeepers and the gastronomy. This certification ensures high-quality raw materials and fair purchase agreements that contain binding prices and quality guarantees. In agriculture and handicraft processing it ensures fair prices that lead to a sufficient profit margin and provide capital for investments, short transportation distances, market partnerships based on trust instead of anonymous market mechanisms, high quality raw materials and the promotion of regional cultural landscapes. Both Fairtrade and organic certifications affect the market position of food producers and strive to eliminate or mitigate the occurrence of UTPs among their holders (Biokreis.de, 2020).

2.4 Unfair trading practices

An EU open public consultation that included several European countries during August 2017 and December 2017 identified the most important UTPs, as shown in Table 1. The frequency indicates how often a specific UTP was mentioned by the 1,432 respondents, each of whom named the three most important practices (European Commission, 2017).

Kononets *et al.* (forthcoming) summarized these practices into the 12 most impactful types of practices that potentially affect SMEs:

(1) *UTP type 1 (U1)*: Unilateral and retroactive changes to contracts (concerning volumes, standards, prices).

Stronger parties use their bargaining power to force the weaker party into signing a contract that contains conditions under which unilateral and retroactive changes to the contract can take place by the stronger party without permission by the weaker party.

(2) *UTP type 2 (U2)*: Last-minute order cancellations.

The producer carries the risk of order cancellation when it is too late to redistribute the order to other customers. This is especially important for perishable products.

No	Practice	Frequency
1	Unilateral and retroactive changes to contracts (concerning volumes, standards, prices)	771
2	Last-minute order cancellations concerning perishable products	316
3	Payment periods longer than 30 days for perishable products	275
4	Payment periods longer than 30 days for agro-food products in general	273
5	Imposing contributions to promotional or marketing costs	248
6	Unilateral termination of a commercial relationship without objectively justified reasons	227
7	Requests for upfront payments to secure or retain contracts ("hello money")	185
8	Imposing claims for wasted or unsold products	182
9	Imposing private standards relating to food safety, hygiene, food labeling and/or marketing standards, including strict verification procedures	179
10	Imposing an upfront access fee for selling a product ("listing fees")	152
11	Programmed overproduction leading to food waste	146
12	Withholding by one party of essential information to both parties	114
13	Passing onto other parties of confidential information received from partner	98
14	Additional payment to have products displayed favorably on shelves ("shelf-space pricing")	90
15	Imposing on a contract party the purchase of an unrelated product ("tying")	78
16	Inconsistent application of marketing standards leading to food waste	60
17	Imposing to suppliers costs related to product shrinkage or theft	40
18	Imposing a minimum remaining shelf life of goods at the time of purchase	11

Source(s): DG AGRI, EC 2018

Table 1. The most common UTPs

(3) *UTP type 3 (U3)*: Payment periods longer than 30 days for perishable products.

Delayed payments to producers can have a negative impact on investments as well as the farm output. This is an issue especially for producers of perishable products.

(4) *UTP type 4 (U4)*: Requiring contributions to promotional or marketing costs from the producer by the stronger parties.

This practice forces the weaker part of the contract to fund the cost of a promotion.

(5) *UTP type 5 (U5)*: Unilateral termination of a commercial relationship without objectively justified reasons.

Contractual sanctions are applied in a nontransparent manner and are disproportionate to the damages suffered. In other words, if a supplier does not satisfy the buyer's informal requirements, the contract can be terminated without any formal reason.

(6) *UTP type 6 (U6)*: Requests for upfront payments to secure or retain contracts ("hello money") and/or an access fee for selling a product ("listing fees").

A charge made by a retailer to a supplier for introducing the supplier's goods to its stores and/or imposing listing fees that are disproportionate to the risk incurred in stocking a new product.

(7) *UTP type 7 (U7)*: Requiring the weaker party to pay claims for wasted or unsold products. Programmed overproduction leading to food waste.

Once purchased, the risk of not selling a product or an impairment that renders it unsellable (and wasted) lies with buyers, maintaining their incentive to efficiently plan and manage their business. Some of the main drivers for food loss at retail stores include: overstocked product displays, expectation of cosmetic perfection of fruits, vegetables and other foods, oversized

packages, the availability of prepared food until closing, expired "sell by" dates, damaged goods, outdated seasonal items as well as overpurchasing of unpopular foods. Claims to cover such losses addressed to the producer should be considered as an unfair practice.

(8) *UTP type 8 (U8)*: The stronger party imposing private standards relating to food safety, hygiene, food labeling and a minimum remaining shelf life of goods.

Private standards are usually referred to as "technical regulations". Usually they are voluntary, although they may in practice become a de facto mandatory standard where compliance is required for entry into certain markets or store shelves.

(9) *UTP type 9 (U9)*: Passing of confidential information to other parties or withholding of essential information.

A contracting party uses or shares sensitive information with a third party that was provided confidentially by the other contracting party, without the latter's authorization, in a way that enables it to obtain a competitive advantage. Also, there is the withholding of essential information relevant to the other party in contractual negotiations, which the other party should have received.

(10) *UTP type 10 (U10)*: Additional payment to have products displayed favorably on shelves.

Retailers sometimes earn more profit from agreeing to carry a manufacturer's product than they do from actually selling the product to retail consumers. According to retailers, fees serve to efficiently allocate scarce retail shelf space, to help balance the risk of a new product failure between manufacturers and retailers, to induce manufacturers to signal private information about the potential success of new products and to widen retail distribution for manufacturers by mitigating retail competition.

(11) *UTP type 11 (U11)*: Imposing on a contract party the purchase of an unrelated product ("tying").

Tying (also named "product tying") is the practice of selling one product or service as a mandatory addition to the purchase of a different product or service.

(12) *UTP type 12 (U12)*: Requiring the weaker party to contribute to the retailer costs related to product shrinkage or theft.

Imposing a requirement to fund a contracting party's proprietary business activities or the transfer of unjustified or disproportionate business risk to a weaker partner.

3. Methodology

3.1 Data collection

15 respondents were selected for personal interviews using a semi-structured interview guideline. The survey instrument included items for quantitative assessment as well as open questions that were analyzed in a qualitative manner. The interviews were structured such that first the respondents assessed the relative importance of various UTPs, and then we explored several issues in more detail using open-ended questions. We chose Austria and Germany as our main target regions, since bio certification is already fairly developed in these countries. There are 17 private bio certification bodies operating in Germany alone in 2018, which is more than in most European countries (Federal Ministry of Food and Agriculture in Germany, 2020). The second reason for our geographic choice was the public availability of information regarding farmers who own a bio certificate. It was therefore possible to easily

identify certified food producers for our study. The market situation in Austria, albeit with less certification institutions, is similar to Germany, with numerous certification agencies in existence and sufficient public information being available. We combined several means of data collection, including a mail survey, phone calls and field trips to several farms. The mail survey was mainly used to address target groups in Germany. A combined approach of phone calls and field trips was used for Austrian farmers. The data were collected between February and March of 2020.

3.2 Respondents

Basic information about the farmers are shown in Table 2. In order to ensure the confidentiality of the respondents, no personally identifying information is disclosed. Two of them are from Germany, and 13 come from Austria. All respondents were identified over the internet and are currently actively engaged in farming. Five farmers produce cereal, four corn and fruit, three soybeans and vegetables, two honey, wine and meat, and one produces milk and hay. When it comes to the size of their land, two own more than 60 ha, five have 11–60 ha, five have up to 10 ha and three farmers preferred not to disclose their land size. When it comes to the duration of the bio certificate ownership, five farmers have had it for 20 years or longer, four respondents from six to 19 years and six respondents have had it for up to five years.

Respondent	Interview	Main product	Size (ha)	Bio certificate	Bio certificate ownership (years)
A	Google form	Honey	–	Biokreis	3
B	Email	Honey	–	Biokreis	20
C	Questionnaire	Wine, cereals, soybeans, corn	56	Austria Bio Garantie / Erde and Saat	27
D	Questionnaire	Meat, vegetables, fruit	1,5	Austria Bio Garantie	2
E	Questionnaire	Goat milk products	10	Austria Bio Garantie / Bio Austria	11
F	Questionnaire	Grain production	130	Lacon Institut / Erde and Saat	4
G	Questionnaire	Cereal corn	–	Lacon Institut / Erde and Saat	4
H	Questionnaire	Wheat, corn, soybean	180	Austria Bio Garantie / Bio Austria	14
I	Questionnaire	Soybean	2	Lacon Institut	1
J	Email + personal interview	Organic asparagus and strawberries	700	Lacon Institut	20
K	Questionnaire	Cereal, corn, wine	60	Austria Bio Garantie / Bio Austria	20
L	Questionnaire	Apricots	20	Bio Austria	23
M	Questionnaire	Stock breeding (lamb production)	60	Bio Austria	11
N	Questionnaire	Cereals, vegetables, spices	22	Bio Austria / SGS AMA GA.P.	11
O	Questionnaire	Hay	3	Bio Austria	1

Table 2. Farmers' basic information

4. Results

4.1 Quantitative results

4.1.1 The impact of bio certifications on UTPs. The respondents were asked whether bio certification can potentially eliminate or mitigate the respective UTPs using Likert-type items ranging from 0 (strongly disagree) to 10 (strongly agree). The respective values can be found in Table 3. The total average across all UTPs was 2.8, indicating that the farmers, on average, are quite skeptical regarding the potential of certifications to reduce UTPs. However, it can also be seen that the respective assessments for basically all categories have a wide range, implying that bio certifications might be more beneficial for some farmers than for others, depending on the region, the produce and the current market situation.

4.1.2 Change in product profitability through bio certification programs. One further goal of this research project was the overall assessment of the economic benefits that bio certifications can provide to farmers. Only five respondents were able or willing to assess the economic benefits. Notably, all of them saw a positive effect which, on average, leads to an increase in product profitability by 21%, with answers ranging from 10 to 30%. The products in question included vegetables, fruits, meat, cereals, spices and hay (see Table 4).

4.1.3 Fees for organic seals. The costs of bio certification in EUR/year are shown in Table 5. In order to better understand whether organic certification can yield economic benefits, it is necessary to compare the additional income resulting from organic products with conventional products. The added benefit differs from product to product, but, on average, the farmers report a higher margin from organic products and a moderate return of investment from the bio certification, albeit the exact benefit turned out to be hard to quantify.

4.1.4 Perspectives of trading web platforms. Additionally, we asked the farmers whether they believe that web-based trading platforms will play a bigger role in the future to facilitate trading between small and medium-sized food manufacturers. These platforms enable direct communication between trading partners and help small farmers to save costs by cutting out intermediaries. On average, the respondents believe that this will be the case, with a mean value of 6.4 out of 10.

4.2 Qualitative results

4.2.1 Positive aspects about bio certification. Table 6 lists several benefits as perceived by the farmers resulting from bio certification. Our findings confirm that bio certifications are

#	Respondent	U1	U2	U3	U4	U5	U6	U7	U8	U9	U10	U11	U12
1	A	0	0	0	0	0	0	0	0	0	0	0	0
2	B	10	0	0	0	0	0	0	0	0	5	5	0
3	C	0	4	7	8	0	3	4	0	0	8	2	2
4	D	4	5	5	5	5	6	5	8	8	5	4	5
5	E	1	0	0	5	0	0	0	5	0	0	0	0
6	F	0	0	0	3	0	1	0	0	6	0	9	8
7	G	7	4	7	3	6	8	7	8	6	3	7	8
8	H	5	4	0	7	7	6	7	5	0	6	3	3
9	I	6	7	8	4	7	7	6	7	3	8	5	5
10	J	8	8	0	0	0	0	0	0	0	0	0	0
11	K	0	0	0	8	8	2	8	6	6	7	6	6
12	L	0	0	0	0	0	0	0	0	0	0	0	0
13	M	3	0	0	2	2	3	2	4	4	3	2	3
14	N	2	2	2	4	2	4	3	3	3	4	3	4
15	O	0	5	0	0	0	0	0	0	0	0	0	0
Average		*3.1*	*2.6*	*1.9*	*3.3*	*2.5*	*2.7*	*2.8*	*3.1*	*2.4*	*3.3*	*3.1*	*2.9*

Table 3.
Impact of bio certification on UTPs

frequently used as a marketing tool with the main goal to increase sales. Furthermore, they help to signal superior quality to the consumers or simply reflect farmer's inner conviction.

4.2.2 Disadvantages of bio certification. 14 out of 15 respondents indicated that there were no disadvantages arising from bio certification. Only one farmer complained about requirements that were "too strict" and led to additional responsibilities.

#	Respondent	How much does the profitability of certified organic products change (in percent) as compared to noncertified products?
1	J	+15%
2	L	+20%
3	M	+10%
4	N	+30%
5	O	+30%
Average		*+21%*

Table 4.
Change in profitability after bio certification

Respondent	Land size, (ha)	Cost of bio certification (year), EUR	Main product
A	–	n/a	Honey
B	–	250	Honey
C	56	280	Wine, cereals, soybeans, corn
D	1.5	80	Meat, vegetables, fruit
E	10	100	Milk goat products
F	130	1000	Grain production
G	–	900	Cereal corn
H	180	700	Wheat, corn, soybean
I	2	290	Soybean
J	700	3200	Organic asparagus and strawberries
K	60	700	Cereals, corn, wine
L	20	n/a	Apricots
M	60	1000	Stock breeding (lamb production)
N	22	350	Cereals, vegetables, spices
O	3	117	Hay

Table 5.
Responses on the question by respondents

Respondent	English version
A	Quality becomes visible to consumers
B	Marketing, self-image
C	Quality standards, marketing
D	A small step back to nature
E	By conviction
F	Marketing
G	Marketing
H	Control over production
I	Better sales opportunity
J	Recognition of organic cultivation safety for customers and consumers
K	n/a
L	n/a
M	Increased sales
N	Documentation, traceability
O	Control

Table 6.
Benefits of bio certification

4.2.3 Web trading platforms for farmers. Web trading platforms were not used by the farmers in our sample, and it was our goal to better understand the underlying rationale for this situation (Table 7). Analyzing the qualitative answers, we identified two main reasons. First, agricultural markets mostly work following a strict preordering production plan, which means that food producers get preliminary market information that helps them to predict the future demand and price. Based on this information, the farmers create preplanned production volumes with the hope to sell the crop according to existing terms and conditions. Second, products that can be sold on commodity exchanges and be stored over a prolonged period of time strongly differ from fresh vegetables like strawberry or asparagus, and existing marketing platforms suffice for their exchange. Additionally, the farmers pointed out that they have strong personal relationships with their main customers or that they are too small to benefit from trading platforms.

4.2.4 In-depth interview analysis. In the final section of our survey, we asked the farmers to briefly comment on important future developments and to give us a more detailed explanation of what they expect from certifications and the application of web-based platforms. We clustered our findings into five research areas which we believe deserve further attention. We will briefly discuss them in the following sections and also include several seminal statements of the farmers.

Research area 1: the impact of certification on sales and consumers' perceptions The certification of food products has gained importance over the past couple of years. This can be attributed to numerous food scandals as well as to consumers' growing interest in the origin and quality of their products. As one farmer pointed out: "*What I can observe is that the origin of a food product now is more important for a consumer, especially if they are from Austria, Germany or Switzerland.*" Additionally, certifications might also be a suitable means to shape consumers' perception regarding the quality of a specific product: "*Consumers who buy organic products pay more attention to the origin of the product. They think that regional or local productions of foods are fresher and healthier [. . .] even if it is not so."* We thus propose the following research questions:

RQ1a. How does the certification of food products impact consumers' perception regarding their quality?

Respondent	English version
A	n/a
B	Direct marketing is preferred. Strong relations with major customers
C	Direct marketing is preferred. Farmer delivers directly to end customers
D	n/a
E	Unnecessary
F	n/a
G	Contract production only
H	Marketing through local product trade
I	Farm too small. We market processed products directly to the organic trader
J	Existing relationships with long-term partners on the basis of trust Asparagus and strawberries are sold before they are harvested There are no contracts and no penalties if the harvest does not match the planned amount. Sales are based on personal relationships
K	Delivers directly to dealers
L	n/a
M	Everything from the farm is delivered to private customers
N	Needs to collect more information first
O	No need for such a platform

Table 7.
Reasons for not using a web trading platform

RQ1b. What is the impact of certification on the sales of food products?

Research area 2: the impact of certification on profitability As we have outlined above, certifications cost money, but they can also positively contribute to a company's image and therefore help to increase the profit margin. The market price for organic and bioproduction can help to increase profitability along the supply chain. However, during the interviews, it turned out that there might be other factors that affect the price more than the bio certification itself. Additionally, it was revealed that substantial price differences for final consumers mainly result from added value in the supply chain rather than being a result of increased production costs: *When you look at the price in the retail store you can see a difference of around 40% for organic and conventional products, but this is a difference for consumers. In fact, the difference in price upon Incoterms "EXW" (from the farm) is not so big and only about 15%.* As one farmer pointed out, having a price premium is not always an option: "*It depends on many circumstances and terms of trading. [. . .] when we have a surplus of production and the bio certification itself does not affect that situation, we sell organic foods for the same price as the conventional product, sometimes even cheaper."* Furthermore, it was pointed out that certification is only one determinant of pricing and that other factors might be at least as important for the final consumers' willingness to pay: "*Profitability it is more about quality, logistics and terms of sales and much less about a bio certification for production."* It is therefore crucial to quantify the exact contribution of a certification:

RQ2. How does a certification contribute to value creation along the supply chain and which market participants benefit the most?

Research area 3: the potential of certifications to reduce the level of retroactive changes in contracts and last-minute order cancellations As is shown in Table 3, during the interviews several farmers pointed out that certifications only mildly mitigate the problems arising from the first two UTPs, namely unilateral and retroactive contractual changes and last-minute order cancellations. We used the qualitative interviews to gain further insights on why this might be the case. A striking feature of most producers of organic products is their small size, which fosters interpersonal communication: "*Personal relationships in our businesses is a key feature and we work on trust. Violations of contracts occur quite rarely."* These personal relations can even substitute written contracts: "*I did not and do not have any paper contracts with clients, and my clients are several wholesaling companies. When you talk about changes in contracts, for me this means a breach of contract which was agreed upon with a handshake."* Summarizing, we found that the impact of certifications was fairly limited due to existing market structures that foster personal relations and simple communication channels: *All in all, bio certification by itself does not improve anything because of the small market share of the bio producers.* Hence, we suggest to further investigate the important role of personal relations in supply chains for organic products:

RQ3. To what extent do personal relationships substitute contractual relations for SMEs producing organic products?

Research area 4: the influence of bio certification on the remaining ten UTPs One striking result regarding farmers' assessments of the potential for certifications to positively impact various UTPs was the great range of answers as shown in Table 3. In every category, there was at least one farmer answering with "0", indicating that no positive effect whatsoever exists, while the maximum value that was achieved in all of the categories was an "8". This illustrates huge differences of opinions on this matter and somehow reduces the explanatory power of the mean value. In previous sections, we have already highlighted some of the potentials of certification, but it is also crucial to understand why some farmers do not see

much potential. It turned out that at times a certification can even be a disadvantage and leads to additional scrutiny from buyers: "*Sometimes we have to sell our production as conventional products in order to avoid additional laboratory and test controls from powerful buyers. This creates additional obstacles for retail store access rather than simplifies it.* Again, trust and personal relations turned out to be major constituents of market relationships. In spite of clear-cut standards that are frequently publicized and go along with certification, there might still be some distrust on the side of the retailer. As one farmer points out, this can even have a detrimental effect in case the certification procedures are not well-known: "*I would say that there is an impact with an opposite effect. For example, if your products have a bio certification label it does not guarantee easy access to a retail store. On the contrary, many retailers do not believe that you follow all organic certification requirements".* Finally, one farmer points out that retailers, as the stronger partners in the business relationship, might prefer to impose their own standards on the farmers: "*Bio certification allows the stronger party to impose private standards relating to food safety, hygiene, food labeling, and a minimum remaining shelf life of goods."* Given the big differences in the quantitative assessments, in combination with the qualitative reasoning on why certification might not work out for certain farmers under specific market conditions, we suggest further research into those factors that determine whether or not a certification yields positive results regarding UTPs:

RQ4. What are the contingency factors that determine whether or not certifications contribute to the elimination or mitigation of UTPs?

Research area 5: usage of web-based trading platforms Finally, we asked farmers about their lack of usage of web-based trading platforms. One important insight that we gained was that a fairly large share of the production was sold based on pre-orders, eliminating the need for platforms on the open market: "*Fresh vegetable suppliers like us are working on a production plan that is based on pre-orders. We know with a high probability how much we will have to produce and which price we will finally get [. . .] we just do not need such web trading platforms to sell our products."* Additionally, the farmers pointed out that the usefulness of web platforms also depends on the types of products and their durability: "*These types of platforms are suitable for storable foods such as potatoes, carrots, or cabbage or for farmers who prefer to make direct sales."* Given the wide-ranging needs of farmers depending on the products or market situations, we suggest that further research closely investigates those conditions that might favor the use of web-based platforms:

RQ5. What are the contingency factors that induce farmers of organic food products to use web-based platforms?

5. Managerial implications

Summarizing, the most important findings for managers are as follows:

(1) Bio certification is not the only selling point for farmers but a powerful marketing tool to address end consumers.

(2) The market price for bio production exceeds that of regular production, which increases the level of profitability in raw commodity procurements by +15% and in retail by +40%.

(3) Bio certification reduces the likelihood of several unfair trading practices.

(4) Web platforms do not work equally well for all food producers and make more sense for storable products.

6. Conclusions and further research

Based on the findings from 15 in-depth interviews with certified farmers, we conclude that bio certifications can have several positive effects that can help to partially mitigate several UTPs. First, bio certification can reduce the level of unilateral and retroactive changes to contracts concerning volumes, standards and prices. The main reason for this is that organic producers experience limited competition, which strengthens their position on the market. Second, bio certification can reduce the level of last minute order cancellations. This is possible since certifications restrict the entry of new players in the market, which reduces competition and strengthens the negotiation power of existing market participants. However, in both cases it turned out that these positive effects only hold for some farmers, contingent on their products and existing market relationships.

As far as the remaining UTPs are concerned, the farmers also see minor benefits from bio certification. One benefit is that bio certification improves a product's image among final consumers and increases retail sales. This, in turn, leads to a higher profitability. Organic trade exchanges, such as o-tx.com, rawex.info or biowarenboerse.de can serve as tools to further increase sales or to trigger direct sales. Although not commonly used today, two-thirds of the respondents believe that such platforms will play a larger role in selling food productions in the future. Taken together, the answers from the farmers signaled a substantial potential of certifications and trading platforms that is not yet fully exploited. Further research therefore needs to investigate consumers' perceptions regarding certifications, the impact of certification on profitability, the mechanisms through which certifications can help to reduce UTPs, the role of personal relationships in food supply chains and the acceptance of web-based trading platforms.

This study also points attention to the increasing digitalization of markets in the food industry. The use of technology has the potential to greatly improve market transparency and significantly reduce the incidence of UTPs. One example of how this can be achieved is blockchain which enables increased transparency in value networks (Treiblmaier, 2018) and, in combination with the Internet of Things, opens up new possibilities for modern supply chains (Rejeb *et al.*, 2019). In this regard, the wide availability of information on the activities of manufacturers will drive the spread of bio certification which will provide equal opportunities for all manufacturers.

This study has several limitations. First, the sample size was relatively small, which allowed us to conduct in-depth interviews and to analyze our raw data in much detail. However, this also limits the generalizability of the findings. Organic products and bio certifications are used for a wide variety of agricultural products, and further empirical studies are needed to assess farmers' general sentiment as well as different strategies to respond to increasing competition across agricultural products. Second, this research was geographically limited to Austria and Germany, a region in which bio certificates already play an important role. Further research is needed to explore its importance in different geographical regions in which certifications are less common.

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