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The Quality of Audits – A Comparative Study of Auditing and Certification Schemes in the Food Sector

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THE QUALITY OF AUDITS - A COMPARATIVE STUDY OF AUDITING AND CERTIFICATION SCHEMES IN THE FOOD SECTOR

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Abstract

In spite of the increasing number of certification schemes in the food sector, there is only few research about the economics of certification. Given the rapid growth and the lack of experience the actors have to cope with different forms of opportunistic behaviour. The following paper describes the basic structure and information economics reasons why certification schemes are created. Subsequently, an institutionalistic model is presented which includes several starting points to increase quality of certification systems mainly based on analogies in financial auditing.

Keywords: Audit quality, New Institutional Economics, Certification schemes, Organic Certification

1. Introduction

Numerous crises and scandals (BSE, FMD etc.) have shaken the European food sector over the past years. In spite of far-reaching regulations and governmental control most of the causes could not be detected until the crises had occurred leading to a loss of consumer confidence in the safety and quality of many food products. To regain consumers' trust different players have founded an increasing number of quality assurance schemes. In the long run only a reliable control procedure reduces the risk of food scandals. Whereas research and public debate on the audit quality within the food sector are just at the beginning, there is a great deal of discussion about auditing in general. Scandals like Enron caused a deep loss of confidence in the quality of audits (Baker, 2002, Shaikh and Talha, 2003).

Principally, auditing and certification processes bear similarities in incentive structures and institutional organisation. Auditors or certifiers monitor the managers' activities in order to reduce problems of moral hazard in (production) processes (Ballwieser, 1987). Usually, the auditing process is carried out by independent inspectors (certifiers) who in turn are granted admission according to the rules of the certifying body. Only if the certifiers succeed in revealing flaws and opportunistic behaviour within the production chain quality assurance concepts are likely to build up reputation and serve as a quality signal. From practical experience we know that especially certification systems are susceptible to opportunistic behaviour of the actors. An example is the nitrofen scandal: Storing organic corn in a pesticide-contaminated warehouse lead to heavy contamination, which was not revealed by the certifying institution (Spiller, 2003). Obviously, the quality of the institutional structure considerably adds to the effectiveness of a certifying system. Based on New Institutional Economics, the following paper analyses the core structure of certification systems and options to increase the quality of the respective control procedures. In the end, a brief case study about organic certification underlines issues of our presented model.

2. Certification Systems

2.1 General Structure of Certification Systems

“Certification is the (voluntary) assessment and approval by an (accredited) party on an (accredited) standard” (Meuwissen et al., 2003). The main feature of a certification system is that inspections are carried out by independent bodies (third party audit) and based on regulations laid down by external organisations (Luning et al., 2002). On the one hand, the introduction of certification systems as a sector-specific standard element does increase the costs related to spot market activities. On the other hand, quality insecurity for traders and consumers can be reduced significantly. In practice, there is a high variety of certification systems.

Basically, all those systems have a similar structure as shown in figure 1. Central point is the flow of goods between producers and customers. The supplier provides a certificate serving as a quality signal, which is issued by a neutral certifier based on certification standards laid down by the responsible agency. The certifier, in turn, has to prove the ability to carry out inspections according to defined standards. In the majority of the systems this is done by an accrediting body on the basis of the ISO 65/EN 45011 standards. Accreditation is a largely formal act and does not include supervision of the real working process. This is why some of the certification systems intend to introduce a monitoring function involving control-of-the-control institutions either by the system agency itself or by supervising boards. In part, this meta-control is exercised by public authorities as well.

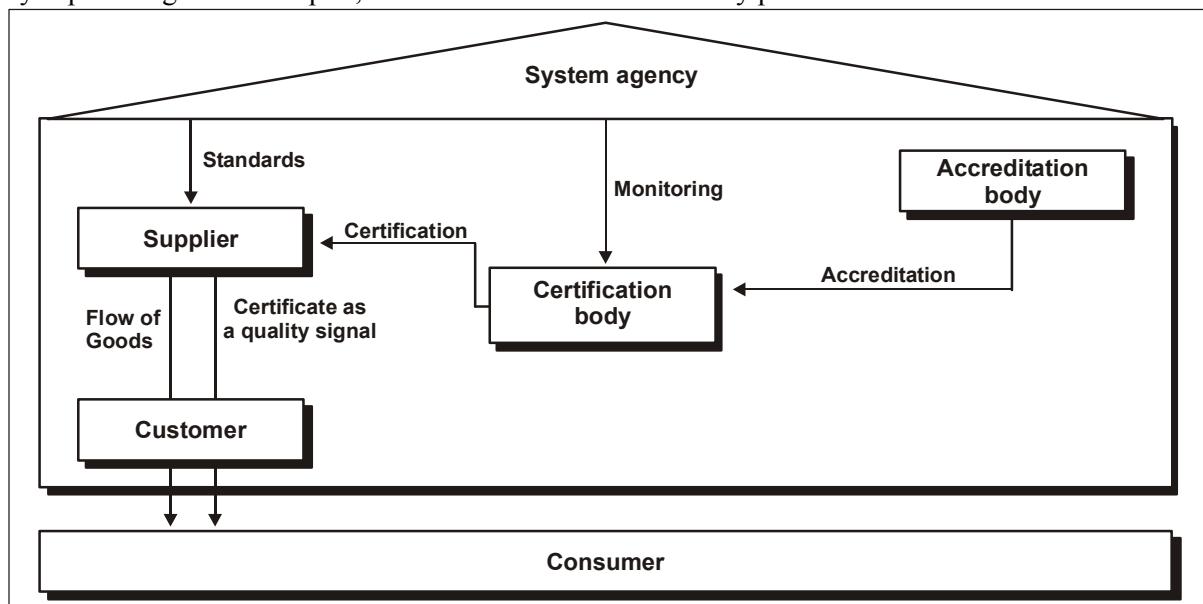


Figure 1. Basic structure of a certification system

2.2 Why Certification? – Quality Uncertainty and the Functioning of Markets

According to the economic model, markets are characterised by supply and demand with the aim exchanging goods. Many theoretical economic approaches imply that both suppliers and buyers are fully informed about the commodities concerned. In fact, market activities are often characterised by far-reaching information deficits and quality uncertainties the consumer has to pay for (Akerlof, 1970, Spence, 1976). They do not only impede a smooth market functioning but –especially in the food market– also require a focus on consumer protection to ensure food safety (Caswell and Mojduszka, 1996, Antle, 2001).

In the following, another quality characteristic is added to the search, experience, and credence attributes that are traditionally dealt with in information economics (Nelson, 1970, Darby and Karni, 1973): Goods featuring the so-called Potemkin attributes (Bodenstein, Spiller 1998) are characterised by the fact that neither the buyer nor external institutions are able to carry out controls because these

process attributes (e. g. Organic Farming, geographical origin or the animal welfare) cannot even be detected in a laboratory analysis (Vetter and Karantininis, 2002). In the case of credence attributes, in contrast, product contamination can be revealed by means of inspections carried out by external consumer protection organisations, public authorities or competitors. By investing large amounts in advertising and thus binding themselves, in the case of credence attributes vendors are able to issue a reliable quality signal reducing information asymmetry. Consumers, in turn, will trust in the signal given the realistic danger of quality flaw detection leading to a capital spending depreciation (sunk costs) on the part of the vendor. The information asymmetry related to Potemkin attributes, however, cannot be bypassed and potentially involves adverse selection processes as quality statements can be made with a minimum of risk. What is needed to circumvent these basic problems is an investigation scheme that covers the whole supply chain and ensures inspections throughout the production process.

Given the aforementioned reasons individual supplier cannot enter into a binding commitment in the case of Potemkin attributes such as environmental protection and animal welfare. Hence, especially in the food market certifying concepts gain relevance as they consider the whole value chain and ensure audits throughout the whole production process (Auriol and Schilizzi, 2002). By means of regular control and –where necessary- additional sampling inspection institutions watch the whole supply chain. Once having been awarded the certificate, the companies are entitled to make use of the quality label for consumer marketing purposes supposed to issue truly reliable quality signals. New legal standards such as the EC regulation No. 178/2002 on traceability will surely fuel the discussion on those forms of quality assurance which comprise all production stages (Theuvsen, 2003).

3.1 Factors Influencing Inspection Quality

The following discussion of certification quality relies on models of auditing theory as there are many parallels in the basic battery of audits. Auditing is in the interest of shareholders as well as the capital market if, in combination with published financial statements, it imparts a credible indication of management quality. However, it cannot be taken for granted that the auditor – or the certifier – will act benevolently (Makkawi and Schick, 2003). Indeed, the audit will be conducted as a business and, therefore, rationally if the auditor can reduce the cost of the audit. Moreover, the auditor's mandate comes from the management of the company being audited, which would prefer no discovery of existing faults (Marten, 1999, Loitlsberger, 2002). In certification systems in the area of quality assurance, the addressees are commercial customers and consumers. In such situations, the certifier functions as their agent, the relationship being comparable to that between an investor and an accountant.

3.1 Overview

The following discussion focuses on the efforts related to the quality of the signal issued by the system agency (body responsible for the system structure) to produce an incentive-compatible inspection standard. We start from the assumption that the system agency is interested in the highest possible inspection standard. In practice, of course, this may not always hold true because there are sometimes additional aims (e.g. agricultural interests may dominate consumer intentions) depending on the economic interests of the system agency. However, we will leave such motives out of the initial discussion.

The model is premised on rational and risk-neutral agents tending to act opportunistically. Assuming the existence of a perfect audit technology, with heightened inspection intensity, the probability of discovering shortcomings grows, as investigation costs do. Certification fees are fixed exogenously. Under these premises, the certification body acts to minimise costs.

The certifier's optimisation calculus can be represented as follows (Müller, 2004): The certifier's marginal costs (MC_C) arise from the marginal costs of the inspection (MC_I) together with the marginal opportunity costs of the loss of the client (MC_O). The latter two pertain to the danger that a company will replace a certifier they view as too strict with a more lenient one. Against a unilateral minimisation of these costs stand the costs of a deficient inspection being discovered (MC_B), which in turn is composed of the potential loss of reputation resulting from the inadequate inspections

becoming generally known (MC_R) and the potential liability (MC_L). Thus, the relevant cost functions to be minimised are as follows:

$$MC_C = MC_I + MC_O \quad (1)$$

$$MC_B = MC_R + MC_L \quad (2)$$

From the certifier’s point of view, a cost minimum appears at the intersection of the two curves that determines the inspection quality to be estimated by the auditor (see fig. 1). From these considerations, we can derive four basic starting points for improving inspection quality: (1) extending the certifier’s liability (increasing the marginal costs of potential liability), (2) intensifying the effects on reputation in the certification market (increasing the marginal costs of loss of reputation), (3) decreasing the certifier’s dependence on the firm being inspected (reducing the opportunity costs of losing the client) and (4) reducing the audit costs by improving certification technology (reducing the marginal costs of the audit).

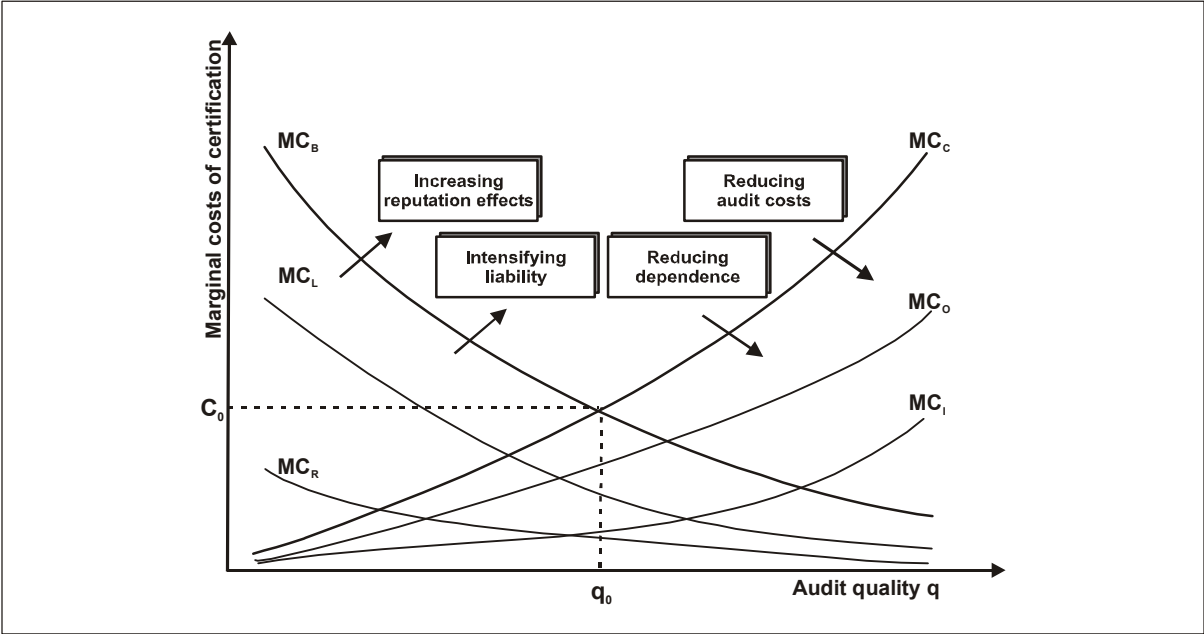


Figure 2: Determination of the cost minimum inspection standard (Müller 2004)

3.2 Intensifying Liability

Intensifying the inspector’s liability raises the marginal costs of the liability and, thus, induces the certifier to increase the quality of the inspection. The certifier’s liability for negligent inspection (P_N) is the product of the probability of discovery (P_D), the probability of liability (P_L) and the potential fine (P_F) (Becker, 1968):

$$P_N = P_D \times P_L \times P_F \quad (3)$$

At present, in most certification concepts, the probability of discovery is relatively small, and there is only a slight threat of liability in practice. System agency today generally relies on the inspector’s formal accreditation. In important systems such as EUREPGAP or IFS, for example, there

are no plans to establish a supervisory authority. This is clearly contrary to financial auditing. Here, two meta-control concepts can be distinguished: monitoring (in Great Britain and Spain, among others) and peer review (as in France and the United States). With monitoring, quality control is carried out by a professional organisation or public agency while, in the case of peer review, colleagues in the profession are called in audit committees. Without such meta-controls, the threat of discovery only exists in cases where damage to a customer becomes common knowledge in the industry.

The certifier's probability of liability is relativised by the effective claims of negligence and the apportionment of the burden of proof. In auditing, there is no absolute liability, so in each case the certifier's guilt must be proven by the injured party. For outsiders, this is naturally difficult. For this reason, there is intense debate about the preventive effects of absolute liability (Ewert, 1999).

In Germany, as in many other European nations, the certifier's potential fine is not determined by third party damages, that is, the losses suffered by those who relied on the signal sent by the certification (customers and consumers); only the contracting party can enforce damage payments. Shared liability on the part of quality certifiers for the enormous damages that result from a well-known brand's loss of reputation can significantly contribute to increasing the level of care they would exercise.

In the literature, incentives represented by intensified liability are sometimes contested with reference to insurability (Ewert et al., 2000). Accordingly, stringent liability would only lead to higher insurance premiums and, thus, to higher inspection costs. This argument applies only if insurers have no opportunity to observe the certifier's activities, that is to say, to monitor liability risk. In high risk cases, this might mean that no insurance policies would be provided. Should this happen, the attendant risk would be intolerable for certifiers, especially if they were made liable not only in cases of opportunistic behaviour but also in those of coincidental or (for the inspector) unrecognisable errors (inherent inspection risk). Differentiating between these error categories is essential to the practicability of an increased level of liability; otherwise, the certification market might well collapse.

3.3 Intensifying Effects on Reputation

An intensification of the effects on reputation would have a similar effect to that of the threat of liability discussed above. If there are no effects on reputation, the supplier has a clear interest in superficial certification. The resulting adverse selection will be encountered only if marketing effects are triggered by certification through a certifier known to be thorough.

The disclosure of erroneous certifications by the system agency would be a conceivable and very efficient variation. Nonetheless, this would require the existence of a third level of control. The failed company and the "successful" inspector would have to be named.

The size of the certification body and the consequent strengthening of the effects on reputation resulting from the high sunk costs is an option much debated in the literature on auditing. According to the findings of empirical studies in auditing, international renowned CPA groups can command high audit fees (Comunale and Sexton, 2003). This can be seen as a reputation bonus which would be lost should there be a scandal. Therefore, in case of doubt, the shareholder should call upon the company to contract with a highly reputed CPA firm or certifier.

3.4 Protecting Quasi-Rents

Protecting quasi-rents, which can be traced back to low-balling as described above, means in essence that the certifier's dependence is diminished. Currently, in most certification systems, suppliers are free to choose their inspectors and, moreover, to change them at any time, even while the contract is still running. Such changes are not even publicised. Under these conditions, it is easy for a producer to go "opinion shopping".

A starting point for increasing the certifier's neutrality could be the introduction of a 25% rule, according to which certifiers would not be permitted to accept clients who would collect higher shares of their overall turnover. This would reduce dependency structures, but would, admittedly, also contribute to a concentration process on the certification market. Moreover, it is important to forbid

changing inspectors in mid-contract. Such changes are still permitted in some fields, such as organic certification.

Separating consulting from certification would contribute to a further mitigation of the distinct dependent relationship that develops if certifiers are also allowed to function as consultants. If the auditing market functions as an entry to the lucrative consultancy market, the opportunity costs of losing a client increase significantly. For this reason it is necessary to eliminate consultancy by certifiers (Tirole, 1995).

Suggestions that the customer chooses the certifier are particularly far-reaching, as is the case, for example, in the German certification system for egg producer KAT e. V., whereby exclusive certifiers are chosen for specific regions by the system agency. In this case, there ceases to be any harmony of goal between the principal and the agent, and, thus, there is no dependency any more. A disadvantage is the limitation on competition, which can lead to higher inspection prices and threaten the neutrality of the certifier, e.g. acting as an agent of the retailing business.

Forced rotation of inspectors is another way to minimize the low-balling effect. However, this solution has the disadvantage of raising the inspection costs as the accumulation of experience resulting from repeated certification of the customer is lost. For this reason, it might be pondered whether inspection contracts could not always, as a matter of principle, last several years and include a pre-arranged termination date. In this way, the certifier's quasi-rent would be protected and, at the same time, learning effects achieved (Müller, 2004).

3.5 *Improvement of Inspection Technology*

In the preceding section, we assumed perfect inspection technology. In practice, certifiers can have varying levels of success with the same costs due to having different levels of know-how or different software support. Improved inspection technology lowers certification costs and, at the same time, contributes to enhanced certification quality. In addition to training and better technical support, appropriate instruments include risk-oriented inspection approaches or a better exchange of data and information between the regulatory bodies.

2 **Case study: Organic Certification**

Principally, only few studies deal with the empirical foundation of models concerning the quality of inspection in financial auditing and there are hardly any empirical analyses in the field of certification quality. Therefore, the following case study about the organic certification scheme is a first step to underline the described model. In 1992 the European Union launched a certification system for OrganicFood (Regulation EEC N° 2092/91) based on the guidelines of organic agriculture organisations (Michelsen et al., 1999). The great lack of credibility in consumer perception has been one of the most important barriers for the diffusion of organic farming. In a first research step we developed hypothesis by expert interviews in Germany and Great Britain. The experts mentioned the following "critical points":

- Contrary to other certification approaches, organic certification implies monitoring activities by the state. However, each public agency has its own standards to control certification bodies. Thus, the standardisation of monitoring processes is low and as a consequence, differences in performance might appear. In particular monitoring overseas inspections is difficult and opportunistic behaviour may easily occur ("coffee-house-controls").
- Secondly, many certification bodies work together with organic associations. Basically, there has to be a separation between advisory services and certification bodies, but there still might be a conflict of interests. As a result the inspection report could be affected.
- Another crucial element is the high degree of fluctuation of certifiers in some certification bodies. Closely linked to this trend is the corresponding training of the inspectors. In contrast to financial auditing, the training is short and rather un-specific. The investment in human capital is on a low level, thus, scarcely any sunk costs appear. Additionally, the salaries of the certifiers are usually kept down. As a consequence some certification bodies try to develop their own professional standards including special trainings and financial incentives. By this means, sunk costs and incentives rise.

- Reputation effects are mainly responsible for the success of certification body increasing their certification quality. Experts mentioned that currently only few customers and/or suppliers consider reputation of certification processes. In order to reduce (economic) pressure on certification bodies more reputation effects are necessary to raise quality orientation in organic certification processes.
- A similar effect is associated with the oversupply of certification services on the certification market. Whereas in Germany the current number of certification bodies is constant (22), in the U.K. there is an increasing number of certifying organisations (approx. 15). Price-competition is consequently high and there is a loss of diligence reducing inspection costs.
- A last point is the problem of control gaps between stages of the organic supply chain. As a result it may occur that larger quantities of organic products are sold than produced (e. g. Frühschütz 2002). This is a result of insufficient data management. Hence, better data-interfaces have to be created.

Altogether, the mentioned issues are just some critical points among others. Players involved already try to increase the quality level of organic certification processes, particularly, on the efficiency of the state run meta-control and transparency (common database). Further research processes and surveys have to follow first explorative studies on the status quo of certification quality.

3 Conclusions

In the food industry, process qualities such as animal and environmental protection, food safety or sustainability are playing an increasing role. Information asymmetry can only be avoided through certification systems that encompass the entire value chain. The theoretical model shows the inherent risks in monitoring procedures from an economic perspective. In light of our described case study and other practitioner reports on dumping prices in the certification market and considerable differences in performance, trust in certification labels is a crucial capital. Individual crises in the past indicate that the certification market is unstable and susceptible to interference.

It is urgent that the meta-control level of the certification concept is strengthened since it provides a potential for improving inspection quality, which can be easily mobilised. In the existing certification approaches based on the ISO 65 or EN 45011 standards accreditation is formalised and sector-unspecific. It does not meet expectations. In state-run certification systems in which the actual control tasks are generally delegated to private certifiers, public authorities are responsible for meta-control. This would have to be considerably expanded. In the sense of a public-private partnership, private certification concepts could integrate public monitoring. An alternative is the expanding of peer-review systems.

At the same time, this discussion has also shown that stricter controls can just as easily have undesirable side-effects. For example, a limitation of competition in audit markets could be the result of the 25 per cent rule. Such trade-offs complicate detailed solutions. Steps to optimise certification schemes or auditing approaches should be taken carefully. In addition to this, there are the effects of interaction among the actors, such as the fact that, in the face of improved internal quality assurance, lowering inspection standards can be a rational response on the part of the certifier. Thus, overall quality will not necessarily rise. Such interaction effects are examined in game theoretic models, which we do not deal with here. Another limitation of our study lies in the absence of motivational aspects. There could be a crowding effect between inspections, certification process and external quality control on the one hand, and the intrinsic motivation to increase quality on the other hand.

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