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**Quality Regulation and the creation of a private market for certification.  
Institutional design and regulatory issues in Agro-Food Sectors**

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**Abstract**

The role of quality standards in the development of market exchange is today well established and informed by theoretical and historical studies. Beyond the neoclassical model of market pricing and quality signalling through price mechanisms, the question of institutions defining and enforcing quality standards or norms is a key issue for the performance of market exchange and production. This article analyses, based on recent development in transaction cost economics and New Institutional Economics, alternative institutional design supporting quality regulations in agro-food sectors. We focus especially on different quality signals used like superior quality labels, organic label, other product certification and PDO systems. We demonstrate that institutional design matters as it is influencing the costs of measuring valuable attributes of what is being exchanged and the costs of protecting rights and policing and enforcing agreements.

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The role of quality standards in the development of market exchange is today well established and informed by theoretical and historical studies (North, Weingast, Milgrom, 1990, Greif, 1994). Beyond the neoclassical model of market pricing and quality signalling through price mechanisms, the question of institutions defining and enforcing quality standards or norms is a key issue for the performance of market exchange and production. Even further, North (1981, 1990) made institutions the determinant of economic performance and relative prices change the source of institutional change. Following New Institutional Economics analytical framework, the design of quality institutions is influencing the costs of measuring valuable attributes of what is being exchanged and the costs of protecting rights and policing and enforcing agreements (Barzel, 1989, North, 2005).

In this communication, we are analysing, based on an extension of the analytical framework proposed by Yoram Barzel (1982, 1998, 2004), the evolution of quality institutions and conventions in agro-food markets build up since the beginning of the XXth century in the French context, and recently extended by European regulations on food quality and labelling. The development of specific institutional arrangements, like “*Appellations d’origine*” (especially applied to wines like *Champagne, Bordeaux*,... but as well to processed products like Parma ham or cheese products), that have been recently disputed in international trade negotiations regarding the extension of *Intellectual Property Rights* (IPR), but also others systems like high quality products with a “label rouge”, labels for *organic* production or environmental protection (“*integrated agriculture*”), or basic others product certifications based on specific quality definitions and enforcement mechanisms is today well known<sup>2</sup>. This specific legal framework correspond in fact to an extension of the more classical “trademark” laws which define specific property rights on the use and protection (including exclusion) of specific name or denominations.

In contrast with recent empirical and theoretical studies applying standard Transaction Cost Economics (TCE) framework to the analysis of branding strategies and governance structures in agro-food sectors (Ménard 1996, Mazé 2002, Gonzales-Diaz et al. 2003, Raynaud and al. 2005), we emphasises here the role of alternative institutional design supporting the private market for quality signalling and certification systems in agro-food sectors. This article is then more concerned with the “institutions of governance”, and especially the role of *bureaus* and *administrative committees* as a support institutional design

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<sup>2</sup>We are not considering here the case of food safety where governmental action and inspection is dominant since the beginning of the XX century, especially for meat products (Libecap 1992, Crespi, Marette 2003, Starbird, 2005), or mandatory labelling strategies involving health considerations (like nutrition. Safety and nutrition standards are set by specific scientific and administrative committees or agencies not covered here.

supporting individual transactions, and the diversity of private certification systems as enforcement mechanisms (Williamson, 1996, p.5). Our central hypothesis is that there is an interdependence (or as formulated by Williamson (1985) an alignment principle) between the nature of quality attributes that are controlled and the type of institutional arrangements needed to reduce the level of measurement and enforcement costs. Our analysis identifies then possible reconciliation between new institutional economics (Barzel 1982, 2004) and recent developments in socio-economics (Whyte, 2002, Callon 2000) and socio-anthropology (Douglass 1986, Hutchins, 1995) on the role of categorizations and cognitive processes involved in the evaluation of quality. As suggested by Harrison Whyte (2002), “the issue is not rationality but how to construe information and signalling, notably for example, with respect to meanings and measure of quality (p.297).

Until recently standard TCE was mostly taking the role of institutional environment as exogenously given (Williamson, 1996). Some exceptions are related to the study of the interactions between political structure, constitutional arrangement and the independence of regulatory agencies involved in market reforms (Levy, Spiller, 1994, Ménard, Shirley 2005). Another perspective is proposed by North (2005) when suggesting that institutional structures play a critical role in the degree to which diverse knowledge will be integrated and available to solve problems. Complex structures of institutions and symbolic storage systems allow integrating at low costs of transacting the dispersed knowledge of modern complex systems. The institutional design is influencing these processes and the codification of knowledge (Lorenz, 2001). This includes also some consequences on the organization and regulation of private certification systems.

The empirical data is based on an historical and diachronic analysis of the development of the institutional design supporting dedicated quality signalling strategies, and especially the role of committees and *bureaus* in actual public administration supervising this private quality certification system in the French context. This historical survey was completed by case studies on the functioning of these committees over the last ten years<sup>3</sup>. It includes the system of PDO (*Protected Denomination of Origin*), the “label Rouge” certifying high quality products, other product certifications, organic production and a new label signalling the implementation of good agricultural practices, also called “integrated agriculture” techniques, and other mandatory labelling devices (*COuntry of Origin Labels* -

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<sup>3</sup>It includes the participation to the National Committee on Label and Product Certification (CNLCC) during the reform period of 1992-94, discussions and interviews with government advisors and bureaucrats, and more recently, to the National Committee for Integrated Agriculture (CNAR) in 2002-04, field surveys on the actual organization of private certifying activities (Maxime, Mazé, 2004, Guilbert et al. 2004, Mazé et al. 2005).

COOL) developed after the BSE crisis in 1996 in order to restore consumer confidence. We are relating these differences in institutional design to specific definitions of quality attributes, and alternative quality enforcement mechanisms involving the creation of private market for certification and its regulation.

## **I – Labelling policy and quality regulations in agro-food markets**

In agri-food markets, specialized professional guilds have long been major standard setting organizations. As well, the local and geographical origin and names were often used as a quality signal by buyers. Since the beginning of the XXth of century, the involvement of the public authorities in market regulation and protection of consumers is the major driver of modernization of food law and quality regulation. We emphasise the role of the government primarily as a market regulator rather than a direct enforcer of legal rules.

### **1.1 – Consumer information with heterogeneous goods in quality**

Since the beginning of the 80's and the opening of European market, the action of the European Community was mostly focusing on the harmonisation of quality standards as a way to reduce or eliminate possible technical barriers to trade. Food safety was one of the major concerns. However, European regulations were extended beginning of the 90's to other dimensions of quality attributes in order to improve consumer information. In consumer markets, the resolution of quality uncertainty is a central issue. For many products, consumer neither automatically knows the level of quality or whether the information regarding the product is true or not. First supporting collective identification of traditional agricultural products, their scope have been extended to others quality certifications. This includes some labels on organic farming, PDO and PGI systems (*Protected Denomination of Origin, Protected Geographical Indications*). Beyond the case of private branding strategies based on classical trademark law, in general developed and owned by large national or multinational firms, another types of institutional arrangements emerge then in the european agro-food sectors to support differentiation strategies of smaller agro-food firms or groups of individual producers. The design of these quality regulations were mostly influenced by the one build in France since the end of the XIXth century and in other countries like Italy or Spain.

Since the seminal research of Akerlof (1970), the effects of quality uncertainty on market mechanisms has been mostly analysed as a consequence of information asymmetry among buyers and sellers. For transaction costs economics, adverse selection and moral hazard problems are just specific case of a more general problem, the existence of transaction

costs (Barzel, 1989)<sup>4</sup>. Usual typology used since Nelson (1970) and Darby, Karni (1973) to describe these observable problems introduce thus a distinction between: “*search goods*” “*experience goods*” and more problematic situation of “*credence goods*”. The importance of potential quality defects is different according to the type of products and the possibility for consumers to observe before or after the purchase their quality or performance attributes. Many agricultural and food products are included in this last category, and the more problematic. As suggested by Darby and Karni (1973), the resolution of quality uncertainty can take here several forms, from complete vertical integration to other less constraining organizational or institutional solutions. Standard setting strategies and a better codification of knowledge and *savoir-faire* at stake in production processes is one of them.

The creation of quality standards are examples of mechanisms implemented to reduce and manage quality uncertainty and reduce this heterogeneity of goods attributes (Barzel, 1982)<sup>5</sup>. In fact, the reduction of the heterogeneity and variability of products attributes can take several forms : i) *ex ante* reduction through input selection and standardisation of production process, ii) mixing heterogeneous raw materials to get a median quality for final products and iii) *ex post* sorting of products in more homogeneous classes, according to pre-defined grading systems or others formal categorizations (like denominations, product name or classifications,...). Their implementation allows the producers to choose where it is the cheapest point in the production process to measure or to control (Barzel, 1982). These methods are more or less suitable depending of the agricultural or food products and available technologies. In another hand, Kenney, Klein (1983) and Gallick (1984) give examples in the diamond and fishing industries where on the opposite it is valuable to keep bundle of goods heterogeneous in order to reduce marketing and contractual costs. Instead of reducing the heterogeneity, they provide *categorisations* that are helping decision making of consumers.

The specific institutional arrangement supporting quality strategies described previously is exactly providing such categorizations and informations about different attributes that can be linked to each of these products. The definition of each label is based on either *performance standards* that can be directly observed or experienced by consumers or more often *process standards*, that cannot necessarily be observed by consumers but are

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<sup>4</sup> See Mazé (2002) for a typical example of *adverse selection* in the presence of quality uncertainty (here possible BSE contamination of animals) with the BSE crisis in 1996 on the French market where possible “lemons” receive higher price than animal with lower risk of contamination. The labelling of information about the origin of animals help to restore faster consumer confidence and thus beef consumption level.

<sup>5</sup> In models like those developed by Spence (1973) on market signalling, or either Nelson (1970) on information and consumer behaviour, the nature of the information supporting quality signals is in fact exogenously fixed. With TCE, the issue is in fact to endogeneize the choice and setting of quality standards or “*proxies measurement*” used to assess quality or performance attributes of goods (Barzel, 2004).

defining rules to be followed by successive producers at the different stages of the production processes. These process standards do not necessarily insure a completely uniform quality, but they reduce the variability of the expected attributes. Barzel (1982) suggest that “*a consumer seeking uniformity would simply buy units having the same specifications. Thus the capability to measure implies the existence of “standards”*” (p.36). Even brand names involve standards. In contrast with the usual view in economic models of one-dimensional quality attributes, products have multi-dimensional attributes. Barzel (1982) suggest then that a complete measurement and sorting of goods according to all their attributes is too costly. Other categorizations are needed in order to help consumers to frame their decision.

## **1.2 - The role of categorizations and classifications as reference standards**

The role of *categorizations* and the way goods can be classified through specific denominations or, like for agricultural commodities specific grading systems, play an important role here. The categories provided by languages are also central (Barzel, 1985). However, their role on market functioning and their dynamics have until now been primarily emphasised by socio-economists or anthropologists (Douglas 1986, Callon 2000, Whyte 2002). As suggested by Whyte (2002) “the issue is not rationality but how to construe information and signalling, with respect to meanings and measure of quality (p.297). One of their main contributions relies on the framing consumer decisions and the reduction of uncertainty surrounding transactions. But they are also participating to define what Ronald Coase (1992) called the “*institutional structure of production*” by defining also how products have to be sorted according to their attributes or the nature of technology to be applied to reduce the variability of expected attributes of goods<sup>6</sup>. It involves a change in the organisation of production and new forms of division of labours requiring adaptations in the technologies used, and as a consequence of know-how and knowledge build upon. As suggested by Barzel (1982), “*homogeneity of goods is itself a valuable attribute : people will pay extra to know more accurately what they receive*” (p.141). To form such perceptions of products quality, the attributes of traded items have to be defined and measured. Virtually no commodity offered for sale is free from the cost of measuring its attributes. This analysis differs then from other models in the economic literature, where quality labels and standards are analysed as quality minimum standard which can affect negatively producer and consumer welfare by increasing quality level and production costs (Bockstael 1984, Ronnen, 1991). In a world of imperfect

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<sup>6</sup> Douglas (1986) provides a stimulating analysis of the emergence of alternative wine classifications in the Californian Napa Vallée and in different regions of France, and their effects on the organisation of production. In another perspective, some recent socio-economics studies focuses on other market intermediaries (gastronomic guides, networks relations) providing information to consumer and in a position to influencing their decisions.

information and positive transaction costs, reference standards is also helping to reduce transaction costs and improve market functioning.

Providing information to consumers may then reduce *ex ante oversearching* (or excessive measurement) behaviours that can negatively affect consumer and producer total welfare, and as well increase the costs of market functioning (Barzel, 1982). Standard TCE suggest also that without appropriate contractual safeguards, economic agents will not invest in reputation capital needed to sustain effective branding strategies (Klein, 1996, Williamson, 1985). This *underinvestment* problems is more likely to appear in markets where quality building is spread among many small and scattered producers, or when quality strategies involves different difficult-to-monitor producers at different stage of the production process. These two dimensions may combine for some products, increasing the risk of underinvestment compared to optimal situation where consumers will value to receive more information about product quality.

### **1. 3 – Protecting reputation and the diversity of enforcement mechanisms**

Product reputation is an important support for consumer decision making. Creating this reputation may follow different patterns and long term strategies. However, in modern large and impersonal consumer markets, large investments in advertising to support a dedicated brand name are most of the time required (Shapiro, 1983). These investments explain why in consumer markets producers may receive a price over competitive market price equilibrium. Quality differentiation strategies are potentially creating for firms a stream of quasi-rent in the future. The actual value of this price premium represents the economic value of a firm's reputation or its "*reputational capital*" (Klein, 1996). As well, as suggested by Klein Leffler (1981), reputation play also a major role as a market-based quality assurance mechanism where producers receive an incentive not to cheat on quality and to produce the expected attributes of goods. Not loosing this reputation capital is an issue for firms, and provides incentives to find a product definition which fit to changing consumer preferences<sup>7</sup>. The private sanction, here denoted  $K$ , is a capital cost, i.e. the discounted value of future costs imposed upon the producers which violating their agreement by stopping buying products.

The creation of this reputation capital is a key issue for many small or medium sized firms in many agro-food sectors, especially those related to fresh agricultural products, where financial capacity to invest in marketing activities such is often limited. The institutional

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<sup>7</sup> In France, several consumer associations organize in the 80's (precisely in 1981 and 1986) several successful *boycott* against veal meat leading to a significative consumption drop (Mazé, 2000). This boycott was initiated by the use by agro-food firms of growth hormones leading to a deterioration of product's quality.

foundations for the development of a dedicated legal framework to support quality strategies in the agro-food sectors aim to lift out these difficulties<sup>8</sup>. These labelling strategies correspond also to the development of a collective brand name allowing then for some scale economies, as these name are usually used as an *umbrella* brand name (Gonzales-Diaz, 2003), still allowing individual firms to use their own brand names and to develop their own differentiation strategy (while still having some specific rules to respect in order not to introduce possible sources of confusion for consumers).

The role of public authorities through the design of these quality regulations is here only to provide legal tools without substituting to the individual or collective initiative of economic actors to invest resources to develop successful quality strategies. Their use by farmers and agro-food firms relies only on the development of voluntary quality strategies rather than the implementation of mandatory rules. And as a matter of fact, the use of this legal framework does not guarantee its effective use by economic actors, and as well the success of these quality strategies with regards to consumer's expectations. The sole role of public authorities is to protect property rights, enforce them and supervise the functioning of the overall system. This specific quality regulation is based on the bundling (or unbundling) of three functions that are usually analysed separately in the literature :

- i) consumer information and standard setting, even brand names involve the formal or tacit setting of a standard (Barzel, 1982);
- ii) property rights setting on brand name or other legal systems defining intellectual property rights, like for the use of geographical denominations defining the origin of products,
- iii) designing private or public enforcement mechanisms, including the development of private second-party controls or as well, an independent third party certification<sup>9</sup>.

In the case of many food products, final quality is still dependent of raw agricultural materials and farmer's decision, but not only as successive food processors may also be involved, or even retailers (like butchers,...) in the production process. As well, most of these labels rely on the implementation of both *process standards* and *performance standards*, the former being non-observable by consumers. A third party certification by an independent organism was added to the system, in order to act in delegation of customers interests and to identify possible quality problems and as well who is responsible for it. It increases the

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<sup>8</sup> This a difference with the interpretation of Barzel (1982) suggesting that the fewer the dimensions of a commodity amenable to standardized measurement, the greater the emphasis on the brand name. But, even for commodities that can be cheaply measured, brand name helps to assure that measurement are correct" (p.36).

<sup>9</sup> Williamson (1985) was considering wrongly that if *measurement problems* exist, they should be proportional to the levels of specific assets, *reputation capital* build upon a specific brand name being one of them.

probability  $w$  of being discovered when cheating (fraction closed to 100% depending of the control system) in return for an extra individual certification cost  $c_i$ ; reducing at first sight extra price premium for quality expected by producers, but making also up to a reduction of initial investment in reputation capital. The existence of this legal framework allows the producers to economize on the level of individual reputation capital needed to be self-enforcing, i.e. producers will have the rights incentives to commit to the quality requirements by their own without any third party control (Klein, 1996). This legal system is then enhancing complementarities between reputation mechanisms based on self-enforcement at stake with the development of brand name capital and the intervention of third party enforcement.

## **II – The influence of institutional design on standard setting strategies**

As suggested by Barzel (1982), even the development of a brand name involves the definition of a standard. In the case of private brand name strategies, firms are setting their own standards by themselves. In the case of quality regulations like the one analysed in this study, the definition of quality standards and their formalization or codification, requires a minimum of coordination among all the parties involved. Institutional arrangements may help to solve the problem of integrating dispersed knowledge at low costs of transacting.

### **2.1 – Standards setting and alternative quality definition for food products**

The setting of standard is a key issue for improving market functioning (Kindleberger, 1983). As suggested by Barzel (2004), new standards turn private information into public good; shift self-enforced components of agreements into their contractual, state enforced components; lead to less vertical integration and make the contents of commodities clearer, more comparable and easier to enforce. However, transaction cost economics was until recently more concern with the use of standards (Barzel, 2004) rather than their creation and the role of committees or agencies for standardization (Mazé, 2005). In contrasts to industrial products, there are some special issues regarding standardization of agricultural or food products and their adjustment to consumer preferences and tastes (Cochoy, 2001). The development of marketing and consumers studies designed specific methods and procedures to allow firms to adjust product attributes to consumer preferences. These methods are primarily market-oriented and consumer driven. These adjustments follow very different rules and procedures in the case of the quality labels analysed in this article.

The procedures participate to the definition of expected quality attributes by dedicated committees and their formal codification into technical guidelines and process or performance standards to be implemented by all the producers involves at the different stage of the

production process<sup>10</sup>. Quality definition is here driven primarily by technical concerns at the production stages, and then producer's definition of what is a good quality, even if consumer's representatives are more or less involved in the process. The consequence is then differentiated definitions of quality attributes and codification :

- the protected Denomination of Origin (PDO) system that link's product's quality to their geographic origin and to specific production process based on traditional technological know-how defining a specific relationship to a "*terroir*", combining geographical, physical (soil,...) and human attributes that are vouched for by ethnographic or historical studies, or other scientific research in food science (for example for cheese, ham), leading to the codification of savoir-faire, being themselves re-used by agro-food firms developing mixed differentiation strategies based on their onw brand name and these collective brand name...). Quality definition is here based primarily on specific procedures of professional panels tasting and evaluation among "pairs", i.e. farmers and winemakers.

- the "*Label Rouge*", designed as a "*high quality*" label evaluated through several consumer tasting procedure and the definition of process standards both at the farm level (genetics of animal, natural cereals feeding, outdoor production) emerges in the 60's on the initiative of several farmer's association concerned by the defacement of regular chicken quality due to inappropriate feeding practices of animal (especially fish meal). The "high quality" of labelled products in this program is evaluated through specific procedures including panels of consumer tasting.

- A label signalling *organic production*, introduced in the 80's and reinforced in 1991 with a European regulation is based on the non-use of non natural pesticide or nutrients. This quality label on *organic* production is sometimes used by consumers as a *proxies* for healthier food products with lower level of pesticide residues, even if this label is not guaranteeing *per se* any minimum residue level (Caswell, 1998).

- a generic product certification (CCP), certifying the conformity to a referential defined by agro-food firms or producer's organizations. This type of quality certification fin dits market share after the BSE crisis by providing extra guarantees on information management and traceability systems for beef products, and last,

- a new label designed in 2002 in the French context on "integrated farming or agriculture", which is signalling pro-environmental effort of farmers without going as far as

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<sup>10</sup>These quality labels are different from other grading systems used in the agro-food sectors. Pirrong (1995), Foss (1996), Mazé (2002), Chalfant, Sexton (2002) provide examples of the use of grading systems for contractual arrangements in agriculture. These information are not necessary delivered to consumers.

organic production in the suppression of pesticides and other chemical nutrients, but considering other environmental dimensions like habitat management and biodiversity, erosion, information management by farmers (Manhoudt et al. 2001, Mazé, 2005).

The development of these quality labels had in the past years a significant economic impact both on consumer side and producer side (for example, more than 114 000 farms are involved in PDO system). As suggested by North (2005), these new forms of codification of quality could be a response of evolving organization of production and division of labor at the different stage, which in turn created itself new divisions of knowledge.

## **2.2 – The role of institutional arrangements in setting standards**

In the literature, there is a distinction between several patterns of standardization that may influence the level of coordination and transaction costs involved in standard setting. David and Greenstein (1990) introduce a distinction between *de facto* standardization and *de jure* standardization. The latter are defined by governments or international/national standard organisations (like ISO, International Standard Organisation) while the former are set through market competition among firms and standards users<sup>11</sup>. One of the specific dimensions of standard setting activities is the importance of involving producers and potential users as repository of specific knowledge (Foray, 1995). Users are a decisive link in the chain of positive feedbacks, i.e. learning by using that is at root of the dynamic evolution in the technology of standard. By interacting, users engender learning-by-using mechanisms. Depending of the organization of institutional arrangements, these interactions and learning processes will take place differently. Our central hypothesis is that there is an interdependence (or as formulated by Williamson (1985) an alignment principle) between the nature of quality attributes that are controlled and the type of institutional arrangements needed to reduce the level of measurement and enforcement costs.

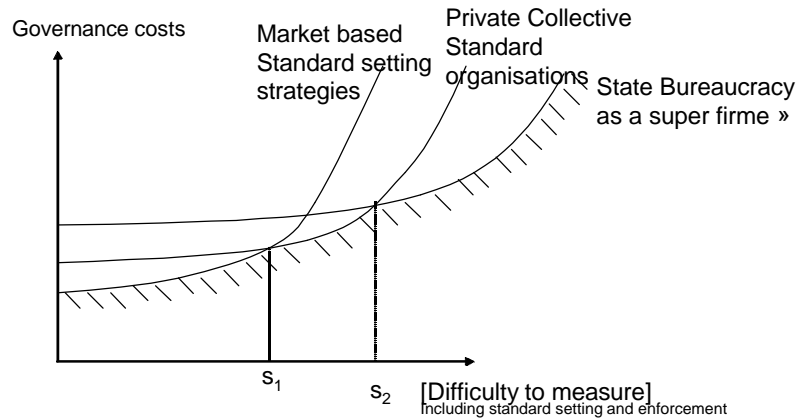
Fixing the choice of these standards setting strategies into transaction cost economics requires some adaptation to the Williamsonian approach focusing on contractual hazards created by the development of specific asset. The major issue is here more following the theoretical proposals of Barzel (1982, 2004) on the difficulty of measurement, including the definition and the choice of the relevant standards, and eventually their enforcement. In the figure 1, we replace the usual integration by the firms and hierarchies, by a higher integration level through state regulation, which can be analysed as suggested by Coase (1988) as a

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<sup>11</sup> David and Greenstein (1990) are defining a “*standard*” as a *set of technical specifications adhered to by a producer, either tacitly or as a result of a formal agreement*”. In the case of *de jure* standardisation, we find government or official standardization organization. For *de facto* standards, two situations have to be considered: uncoordinated mechanisms through market competition, or coordinated contractual and voluntary adjustment.

“superfirm”. These alternative institutional arrangements have different properties for coordination. The hybrid mode is located between market and regulation with respect to incentives, adaptability and bureaucratic costs. As compared with the market solution, the hybrids sacrifices incentives in favour of superior coordination among parts.

**Figure 1 – Trade off between alternative governance structure for quality or environmental standard setting (extended from Williamson, 1991, Barzel 1982)**



From the heuristic model of Williamson (1991) illustrated by figure 1, the governance costs are expressed as a function of the difficultness of setting standards ( $s$ ) and a set of exogenous variables ( $\bar{\epsilon}$ ). Letting  $H = H(s; \bar{\epsilon})$  denote the governance costs of the hybrid mode as a function of measurement problems (including the definition of relevant indicators or proxies for standards setting and their enforcement), the argument is that  $M(0) < H(0) < R(0)$ . When measurement problems increase (like for example for credence good) integration of these activities by hybrids organizations (collective private or professional organization, International Standard Organization - ISO) or through direct regulation by the state will be less costly. A more precise identification of factors influencing this shift in parameters is needed<sup>12</sup>. Transaction costs include then the cost of functioning of institutional arrangements, defined as the set of rules and administrative organizations and their consequences for the efficiency of individual transactions.

<sup>12</sup> Klein (1996) is considering complementarities between contract law and the optimal design of contract terms for a specific transaction. We propose an extension of the reasoning to complementarities between trademark law and market-based quality assurance mechanism based on reputation capital.

For food products, until recently, standard setting was taking place in other committees or institutions than formal standardization agencies. Instead of defining a direct regulation, where the nature of information and the underlying standards and enforcement is realized by public authorities, the latter are just defining the rules of the games and designing committees where quality definition and standards will be defined. Several reasons may explain the adoption of this type of quality regulation rather than an official standardization process: the delays needed for usual standardization due to the unanimity requirement, the very conflicting context surrounding this topic, both in the relationship between retailers and producers, but also between producers themselves and the representative farmer's unions. There is little incentive for the individual user to take part in the negotiating process when a standard is formulated.

### **2.3 - The diversity of private third party certification systems**

Initially the development of these official quality labels was mostly based on the legitimacy of public authorities, and especially the normative and coercive power of the state in defining and enforcing property rights (Barzel, 2002). However, the nature of institutional arrangements supporting these quality labels for agricultural and food products has evolved over time and nowadays is varying across certifications. These different quality certifications rest on the formalization of technical specifications and know-how (verifiable) enforced by a third party. However, a detailed analysis demonstrate the existence of three main patterns of organizations including i) the nature of committees (or agencies) involved in the definition and codification of quality specifications, ii) the organization of third party certification.

These different patterns are the result of historical sedimentation, but as well the accumulation and stabilization of specific implicit knowledge and know-how over time about production processes and their consequences on final quality attributes<sup>13</sup>. They all includes alternative procedures for the codification of quality requirements, including differently producers and consumers into the standardization process. These three models are (scheme 2):

- on the right side, the PDO system based on a collective organization of producers created for the defence of their denomination and supervised by a dedicated public agency (INAO) where representatives unions of producers have a significant power of influence; Some authors were recently suggesting that this PDO system was a “public certification by the state” (Raynaud et al., 2005). In fact, a detailed analysis of decision and monitoring

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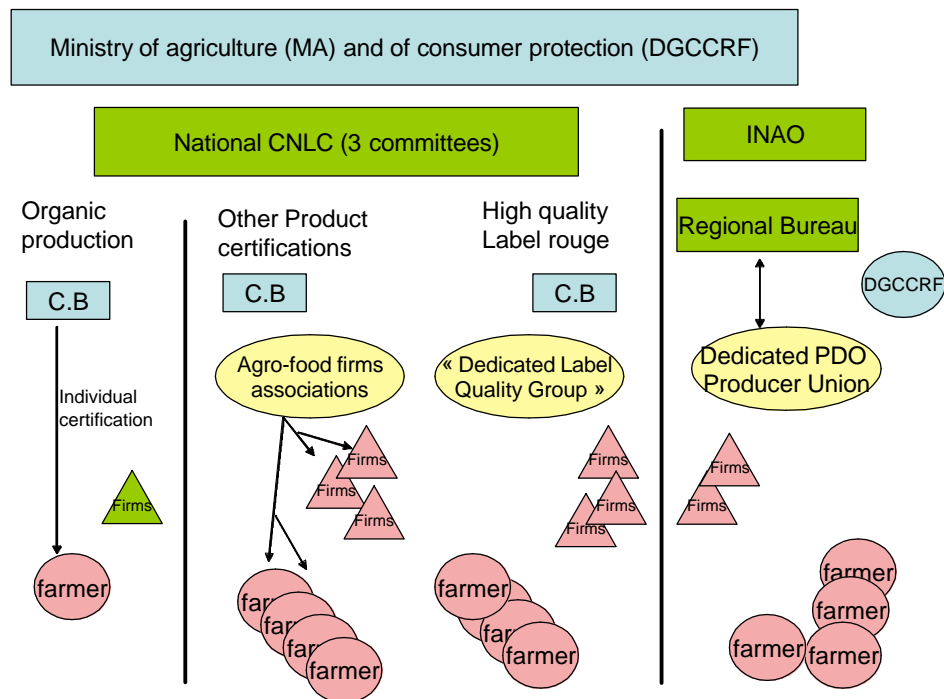
<sup>13</sup> David (1985) provides a fascinating account of lock-in effects for QWERTY writers due to the initial costs of learning and changing routines. In this way, experimentation may allow the implementation of a learning process, but is also creating by the way differences in preferences.

processes applied in this organization demonstrate the very different nature of controls exercised compared to usual public enforcement mechanisms.

- on the central part, formal quality certifications (Label Rouge, CCP) supported by a *collective* organization of producers, dedicated in the case of the Label Rouge (called “quality group”, or interprofessional organizations or individual agro-food firms in the case of other quality certifications (CCP), and audited by an *independent and accredited certifying bodies*,

- on the left side, certification systems based on an individual certification of farms by an *independent and accredited certifying bodies*. This organization was chosen in the French context for the certification of organic production, and as well for the new label on “integrated farming”, even if some options were left out for a formal delegation of part of these audits to intermediary organizations acting as full subcontractors for these accredited certifying bodies.

*Scheme 2 : Institutional arrangements supporting quality certification systems in agriculture .*



This organization allows over time the stabilization of common knowledge and mutual expectations among all the participants about the technical specifications to be applied, less about the nature of competencies and rules to be applied by certifying bodies.

- The development of the PDO system, end of the XIXth century, was relying on of the judges and delineation by the courts. The example of protection of Champagne denomination is a good example. This is only beginning of the XXth that a special public agency was created to sustain their development (*Institut National des Appellations d’Origine – INAO –* on the right side of scheme 2), while at the same time promoting a strong

involvement of dedicated professional organizations into the definition of its general policy. Several reforms change the organization and the scope of intervention of this agency (including progressively other products, like cheese, ham,...).

- The creation in the years 1960's of other quality signal (especially the *Label Rouge*) was supported by another organization of committees and institutional arrangements. The Ministry of agriculture had the administrative responsibility of managing these committees, which progressively includes i) the high quality Label Rouge, ii) Other quality product certifications and last iii) organic production. Three different committees, involving consumer associations, farmer's unions, food processor, retailers, were defining quality standards to be applied and evaluating the ability of incumbents to fit to these standards. These committees were first organised by type of quality certifications, each of them evaluating technical standards and dedicated "habilitation" of certifying bodies for each of these certifying bodies.

In another hand, this habilitation of these specialized certifying bodies has been re-enforced since a formal accreditation is nowadays required and These 's, these specialized auditing companies are supervised by national accreditation authorities (in France, the COFRAC – French Committee for Accreditation) and are subject to international standards (ISO 65 and EN 45011 for product certification, EN 45012 for quality assurance certification and EN 45005 for inspection services). The compliance to these standards is guaranteeing "the independence, competence and impartiality" of private certifying bodies.

A reform implemented early 1990's change then this organization. to a bureaucratic simplification of rules and procedures to be followed by agro-food firms or producer's organization for label application, and as well a rearrangement of committees involved in the evaluation of technical specification of products attributes and claims<sup>14</sup>. They also provide alternative arrangement in the organization of control and third party certification systems. Before the reform of these implemented in 1991, quality controls were realized by a collective organization of producers (called "quality groups") having use rights over geographical names or specific collective brand name, and an independent control organization specialized in the agro-food sector and for this type of certification created called *Qualité France*. This reform introduce a strict separation between these "quality groups" in charge of the communication strategy and certification, leading to the creation of a private market for certification.

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<sup>14</sup> Another reform which should be taking place in 2006 will propose an evolution of the actual partitioning of committees involved in the supervision of these quality certification towards a merger into a unique public agency (probably, the actual National Institute for protected Denomination of Origin -INAO), previously managing quality definition and property rights enforcement on PDO and PGI systems. In contrast to food safety agencies which have a strong requirements to be fully independent, this agency may on the opposite includes producers and other users (Foray, 1995).

Public authorities continue in this new market setting to play their role of “certifiers” in last resort by supervising accreditation systems. Contrasting to the situation of other European countries where quality inspections for organic production is realized by public authorities, the organization chosen in the French system relies primarily to the progressive creation of private market for certification, with independent third party certifying bodies. In between these two polar mechanisms for quality enforcement, there are independent third party certification systems, i.e the control is not realized directly by public authorities, those participating only to the supervision and the regulation of this private market for quality control, and eventually as a second level controller. While clear and concise information labels are addressing problems of asymmetric or imperfect information, the design of cost-effective standard setting and quality inspection and certification systems is also a central issue.

### **III – THE CREATION OF A PRIVATE MARKET FOR QUALITY CERTIFICATIONS**

With the increasing concern of European consumer’s about food safety and product’s quality are questioning and requiring a strengthening of certification and monitoring control policies applied in these certification systems. We address in this section several issues attached to the institutional design of private certification systems: first order efficiency and economizing on certification costs while maintaining audit’s quality and the same level of guarantees (3.1); the differences between individual and collective certifications (3.2), and possible complementarities between self-regulation and third party enforcement (3.3).

#### **3.1 – First order efficiency and the reduction of certification costs**

In the economic literature, the organization of auditing activities have been mostly analysed for accounting and financial activities (Arrunada, 2000) or more recently in environmental economics. In this area, the optimisation of “*auditing policy*” gains special attention regarding the implementation of mandatory environmental regulations (Anton et al. 2004, Spaeter, Verchere, 2004). Monitoring is analysed as a complementary instrument to monetary mechanisms (incentives, taxes). In this case, controls are realized by governmental inspectors and involve monetary or penal sanctions. Optimisation of auditing policies is here limited to the analysis of control frequencies (Starbird, 1994, Spaeter, Verchere, 2004), firm targeting (Friesen, 2003), or the level of sanctions to be applied to discourage opportunistic behaviours by economic agents<sup>15</sup>.

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<sup>15</sup> As well, we do not consider recent strengthening of *ex post* liability rules increasing the responsibility of private firms instead of relying on *ex ante* state inspections, nor private quality assurance systems (ISO 9000).

When considering private auditing activities for voluntary environmental and quality assurance scheme at the farm level or quality certifications, other dimensions need to be taken into account. Contrasting with usual law enforcement where violators if deterred can be punished, the organization of certification systems relies on another philosophy, as it is based a voluntary commitment and motivation of participants, and especially their acceptance for a systematic control. As well, it is different second-party controls performed by a specific firm with its own suppliers, either through *supply inspections* on the quality of outputs at the time of the exchange or *ex ante plant inspections* focusing more on process management (Mayer et al. 2004). In both cases, the nature and accuracy of control techniques are different. In a recent study in the beef sector, Mazé (2002) demonstrate that, *ceteris paribus*, third party certification was sometimes used by some firms as a complement to direct monitoring of retailers over their suppliers, avoiding then the need for an increased vertical integration of supply chains. In this case, third party certification provides Spiller and Zelner (1997) called a “*support transaction*” and a specialized service allowing the supply of added guarantees while maintaining the advantages of market flexibility (Williamson, 1996). However, it cannot be a complete substitute as the nature of the inspection/audit/control is different<sup>16</sup>. Third party certification aims to verify if codified technical quality requirements are met, which are not necessarily including all commercial conditions included in the contract (like on-time delivery, characteristic of the products,... ).

One of the specificities of quality certifications systems in agriculture is that they have to deal with large numbers of small and geographically scattered farms and agro-food firms and markets intermediaries. Inspection and controls are costly in term of travel expenses and auditor time, as well they are increasing with the frequencies of controls. And as well, depending of the complexity of production process it may require several persons at the same time. With the multiplication of quality or environmental regulatory requirements in agriculture, there are also possible redundancies between controls and controllers. In the case of third party controls, auditing techniques to be applied vary across certifications depending of the complexity of the process and the nature of requirements to be controlled. One of the main issue is the reduction of these certification costs, while keeping the same level of quality for the audit progress. In contrast with other models (Marette, Crespi 2003), we consider here situations where a certification is not perfect in the sense that one of the central question is

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<sup>16</sup> The model of Klein (1996) is developing a probabilistic approach to self-enforcement of contracts. This model probability of events but of the ability of contract terms to maintain the equilibrium in an acceptable range, so reducing systematic renegotiation of contract terms.

how to design efficiently environmental or quality auditing systems under a double constraint of reducing resources spent for auditing and certification costs while maintaining audit's quality, i.e. the ability to detect possible voluntary or unattended non-compliance or frauds to quality or environmental requirements (Arrunada, 1999).

For the agricultural sector, reflecting on the organization of the auditing systems is primarily to improve the quality of audits and the efficiency of the private certification processes, that is to say their ability to detect the existence of non conformities or fraud, all the while maintaining the certification costs and controls at an acceptable level from an economic point of view. The implementation of quality certification by farmers may require some mutual learning and adaptation in the organization of their farming systems, especially in the case of organic production, but as well for other quality certifications. Because the cost to set up such a certification process is generally prohibitive for an individual producer, we emphasize here two alternatives in the organization of auditing systems in agriculture:

**Assumption 1 :** The existence of an intermediate collective organizations of producers involved in a specific certification is improving the efficiency of external audits due to a reinforcement of complementarities<sup>17</sup> between independent third-party enforcement and self-enforcing mechanisms. As suggested by Barzel (1982) suggests that agents should bear the consequences of their action, and eventually be the “*residual claimants*” (Alchian, Demsetz, 1972). As farmers may be large contributors in the final quality output, they also should bear the consequences of their actions whether they are positive or negative.

**Assumption 2 :** the combination of auditing and non-audit activities (especially advisory activities) may provide added value and promote stronger commitment and motivation of farmers to these environmental or quality scheme.

Formal separation of the auditing and advice activities is a regulation applied to guarantee the absence of conflicts of interest between the two activities. But as noted by Arrunada (1999) in the financial sector, regulatory authorities often adopt a narrow view of the auditing activity and the question of independence. Certain recent evolutions in the agro-food sector, notably in organic farming where some major frauds were recently discovered, tend to favor the development of a control logic giving the illusion of increased guarantees for the quality of the certification process and then the re-enforcement of independence into certification systems. Is this evolution in adequation with the objective of the regulator ?

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<sup>17</sup> Milgrom and Roberts (1990) define the fact that two activities are complements if an increase in the level of one activity raises the marginal return to an increase in the other activities. The profit or payoff function is called *supermodular* when all activities are complement to each other (Mayer et al. 2004).

### 2. 3 – Individual versus collective certification: a cartelization of producer's ?

Some recent studies focus on the role third party certification and quality regulations for the emergence of stable cartels among producers (Marette, Crespi, 2003). Individual sellers can choose whether or not they wish to signal the quality of their products independently or join a cartel. In an analysis related to the imperfect information and cartel/merger literature, these analyses consider collusion to promote quality signalling as a mean of circumventing market failure despite the restriction of competition among sellers.

According to standard economic reasoning, a regulator can see the potential benefits to the public from quality assurance through certification. However, mandatory certification can be prohibitively expensive to producers and public financing of certification unfeasible. There may be an alternative, that is to allow a cartel to form knowing that if the cartel generates additional rents, this profit could be used for financing the certification costs. The regulator must balance the gains to consumers from added information to consumers and the losses of from coordination. In the 90's, several of these collective marketing associations have been sued by antitrust authorities regarding illegal antitrust practices (especially quantities restrictions and price setting) and collusive behaviours affecting market efficiency (Ménard, 1996, Marette, Crespi, 2003).

In their analysis, Marette and Crespi (2003) suggest that a regulator may find it useful to propose cost sharing within a cartel in order to make quality certification more attractive. One of the issues is the existence of economies of scale and the possibility for members to share these costs. They are then considering several situations where there is a trade-off between cost sharing through joining the cartel and possible collusion on quantities<sup>18</sup>. In this case when several sellers decide to certify their products, they have an incentives to share certification costs : Thus if  $f$  sellers share this fixed costs, each high-quality seller support  $C/f$ . The problem is to maintain the cartel stability without certification cost sharing. The stability of the cartel is depending of benefits expected by members and its ability to limit free-riding behaviour by coordinating collective sanction when a member does not follow the rules. It involves mutual supervision and possible ostracism against potential rule breakers and the risk of loosing future stream of quasi-rent. In this model the authors are considering that certification is perfect i.e. the information on product attributes is perfect for consumers. As a matter of fact, certification is increasing the probability of discovering non conformities

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<sup>18</sup> This problem of possible collusion on quantity is mainly linked to PDO system in the case of vineyards considering that wine quality is partly negatively correlated to production volumes of grapes. Restrictions on quantities in the PDO system do not apply for other products (cheese, dry ham,...)

to quality requirements. However, the risk is not necessarily completely reduced to zero and one specific dimension of auditing activities is that quality of an auditor 's evaluation cannot be necessarily assessed directly (Arrunada, 1999). Then the quality of the service can only be assessed *ex post*. So when considering the need for a reduction of auditing costs, customers need to ensure that the level of the quality of the service delivered will not be declining. The auditing activity displays the characteristics of a "credence good" (Darby, Karni 1973).

Another strategy is proposed when considering the building of self-regulation as a complementary mechanisms to third party certification through the building of private institutions and professional self-regulatory mechanisms based on multilateral reputation mechanisms (Milgrom, North, Weingast, 1990). In this sense, the association of collective organization of producers (either through dedicated marketing associations, or other forms of coordination) within the architecture of these auditing systems may appear as an advantage to favor the development and the reliability of quality assurance processes in farming. Their intervention may be appropriately compared with the role of internal audits usually practised in large companies, which, in our specific situation, have to be externalized due to the small size of farms. In this way, the ADO's involvement in the auditing systems may still be compatible with the notion of independence and credibility for this type of process<sup>19</sup>.

Self-regulation can also occur by other means at an individual level based on specific ethical values and morals of involved farmers, especially for pioneers (Seppanen, Helenius, 2004). For this type of persons, adding controls may have the opposite effects by encouraging the feeling of suspicion and not being trusted, and then leading to their withdrawal of the system and a reduction of their commitment into the system. Intrinsic motivation may be stronger than extrinsic motivation usually analysed in the economic literature (Benabou, Tirole, 2003). However, recent studies shows up that these ethical values were not equally shared among more recently involved organic farmers responding in priority to market incentives and which may have lower commitment level to the system. As well, the recent regulatory design chosen for the development of "integrated agriculture" concept in France is also following a pattern of individual certification, reducing then opportunities for scale economies in auditing costs and not relying on internal values like for organic production which could limit possible opportunistic behaviors.

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<sup>19</sup> Another point is that the obtaining of an accreditation for third party certification codified by international standards (ISO 65) or EN 45011 for product certification, 45012 for system certification, 45004 for inspection) does not mean a complete standardization of auditing practices and organization of these specialized quality auditing firms and certifying bodies.

Self-regulation based on multilateral reputation mechanisms into a community or a small set of persons is another approach to improve private enforcement. The role of formal or informal collective organization is providing to solve disputes regarding the sharing of quasi-rents and to introduce more transparency in the system and reduce then cost of possible conflicts among parties. By the way, it is also introducing a more cooperative spirit into the audit process, including a more direct technical follow-up of farmers and a better understanding of what need to be applied and how to interpret quality standards.

### **3.2 – The combination of audit and non-audit activities.**

Contrasting with this architecture of private auditing systems, with a partial delegation of supervising and monitoring activities, for organic production, the chosen design is based only on external third party enforcement at the farm level. These intermediate organisations are then part of the global quality systems and may participate to increase the reliability of third party enforcement mechanisms in two respects:

i) improving farmer's commitment and motivation over time through specific preparations and appropriate technical follow-up to farmers involved in these quality scheme.

ii) in the case of collective private certificates, the non-compliance of one farmer, under some conditions, may lead to the loss of the certificates for all the group of farmers, supporting then sanctions based on reputation mechanisms among farmers.

One issue regarding the role of these intermediate organizations is then the lightening of external control plan and frequencies, when intermediate organisation are developing appropriate quality management systems (for example, based on ISO standards) and/or with an appropriate internal audit system that are contributing to the overall reliability. Under such conditions and their effective implementation, scale economies in both internal and external auditing costs can then be expected improving then their overall efficiency.<sup>20</sup>

Usually, the formal and strict division of the auditing and advisory activities is considered a condition for the independence of the auditor, which would limit all types of voluntary or involuntary collusion with the client. According to Arruñada (1999), this restrictively considers the auditing functions, the competence of the auditor and the problem of independence. It is important to understand that the audit is for information purposes and

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<sup>20</sup> Moreover, following the rule adopted for “integrated agriculture” (and also usually used for the audit of ISO systems) an appointment was made with the farmer for this audit. This organization of the audit is contrasting with the rule of unattended controls at the farm level applied for Label Rouge : farmer's attendance is not required if free access to buildings and documents is guaranteed to the auditor, and for the interprofessional quality charter IRTAC-Arvalis on cereals: farmer's attendance is required, if not another farmer is controlled.

for this, the auditor must give his professional judgment based on “soft” information relating to the activities of the company undergoing the audit and this is not only limited to “hard” information that is verifiable. This conception of the audit seems particularly pertinent in the case of a certification audit where its guidance, based on a standard or a referential used to research and evaluate auditing information, is never delivering exhaustive specifications of the possible situations that could be met by the auditor.

This is a central point in the analysis Seppänen and Helenius (2004) who study inspection practices in organic farming : if this advice is organized and codified in a systematic and reasonable manner, the advice during the audit is a way of contributing to the reinforcement of the complementarities between a formal third party evaluation in respect of the specifications and processes of voluntary compliance and auto-regulation by the auditees due to better communication and consideration of the local conditions.

In this sense, combining the auditing and advisory activities on the individual level of the agents would be advantageous in helping the auditor construct his professional judgment. In fact, the advisory activity, providing information regarding the fields of activity, their environment, the organization of the companies, the style and the client management ability, would allow the auditor to acquire more intimate knowledge of the audited activity and be more efficient during the research and evaluation of the information. Moreover, at the organization level, combining auditing and advisory activities would help to expand the fields of expertise of the organization and permit economies of scale (Arruñada, 1999).<sup>21</sup>.

Actual official auditing regulatory authorities are formally or implicitly restricting such auditing practices on the relevant behalf of possible risk of collusion between auditees and auditors. Nevertheless, some of these rules may sometimes overemphasise, especially under the pressure of user’s association wondering about the effectiveness of these controls, an “independence in appearance” of auditors with stricter rules over an “independence in fact” where auditors have more autonomy in their risk’s evaluation and can use softer information rather than only reporting hard and verifiable informations. Usual theoretical analyses of optimal auditing strategies only focus on control frequencies, penalty factors that can affect the efficiency of auditing activities and the level of certification costs. Other dimensions need to be assessed regarding the appropriate functioning of a market for certification.

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<sup>21</sup> See Arrunada (1999) for a discussion of possible unintended effects of audit regulatory rules, and especially the distinction between “independence in appearance” and independence in fact”. Current trends in audit regulation tend to consider only verifiable and “hard information” to the detriment of softer information that are involving more autonomy of the auditor regarding risk evaluation in each specific situation. One of the dangers therefore, is to favor “defensive” audits in which the auditor will tend to report the slightest problem to avoid responsibility or will perform according to a comprehensive list of criteria verifiable by a third party.

The two constitutive aspects of the quality of an audit: on the one hand, the technical competence of the auditor is his ability to detect discrepancies in the information he is verifying, and on the other hand, independence is his ability to report all problems or non conformities detected during the audit. These two aspects are connected during the performance of the activity. A lack of independence would likely cause a decrease in effective technical competence, in the sense that the auditor could choose not to look for problems that he does not intend to report. In this perspective, Maxime, Mazé (2004) suggest an analytical differentiation between *control* and *audit* activities. These terms are usually used equally in the literature, even if they are referring to two distinct task organisation and work activity (Lorenz, 2001). This is especially of importance when recent trends by regulatory authorities tend to favour situations where audit supports take the form of closed checklists leaving a very small margin for appreciation of the situation for the auditor/controller. This situation tends to favor what Arrunada (1999) refers to as independence “in appearance” based on use of verifiable and exhaustive information. This orientation is however established to the detriment of information that is not necessarily verifiable and leaves more room for the auditor’s personal judgment of the situation.

## **V – CONCLUSION**

The crucial point is to recognize that efficient markets are created by structuring them to have low costs of transacting (North, 2005, p.77). Most of the economic literature on food labelling focuses on consumer’s issues and their effects on market efficiency (Caswell, 1998). The use of labelling on food product is gaining in prominence in many countries as a regulatory tool to inform consumers and influence markets for food quality. Regulatory choice for food labelling can take several forms. Recent studies recently argues that all these labels, due to their multiplication, were also contributing to increase the risk of consumer confusion facing excessive and non-relevant information (for example, on dietary ) (Verbeke, 2005). The diversification and extension of these quality regulations is leading to the creation of a private market for certification in Europe, i.e quality controls are realized by specialized and accredited private Certifying Organisms. The diversity and the lack of harmonisation of certification systems have been emphasised as a major difficulty for organic producers of developing countries (Barret et al. 2004). However, private standards superseding governmental action in the absence of international regulation are not solving the institutional gap linked to the supervision of accreditation systems and the harmonisation of auditing practices among these independent certifying bodies as a preliminary condition for the creation of competitive and reliable private market for quality certifications.

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