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Quality Signals and Governance Structures within European Agro-food Chains: A New Institutional Economics Approach[‡]

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Abstract: The goal of the paper is to design a framework to study the links between quality signaling, coordination in the supply chain and institutional environment. In order to safeguard quality to consumers, we assume that there must be an efficient alignment between quality characteristics, mechanisms of quality control (including certification) and governance structures. In order to test this general hypothesis, we conduct a comparative analysis of 42 case studies in 3 sectors at the European level. Our research shed lights on the safeguarding quality issue in agrofood chains. It will also adress the issue of compatibility between antitrust and producers organization.

Keywords: agro-food sectors, governance structure, quality signals, quality control, safeguards, vertical chains.

J.E.L classification:

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0. Introduction

Economists have clearly established that in food markets, consumers cannot spontaneously know the quality of the products. Economic theory shows that one of the means for resolving this problem is to use of quality signals. Brand name is the archetype of such signals. The creation of a quality signal can be initiated by individuals or by several producers as it is the case with "collective label" (official certifications of product origin, etc.)¹.

In some countries, for example France and Italy, most existing analyses concern particular areas of production (regional products with an established reputation). Indeed, previous analyses have concentrated on quality strategies which use formal guarantees and certification procedures external to the market, e.g. , mostly official certificates of origin. In contrast, in countries where the agro-food sector has a greater tradition of industrialisation, most notably northern Europe, it is mainly private brand name strategies and new systems for quality assurance (ISO certification, etc.) that have been studied.

However, all the above analyses share a major lacuna : *they never address organisational aspects of the relationship between producers involved in the development of quality signals*. The purpose of our study is to provide a comparative analysis among organisational arrangements involved in the management of different types of quality signals in seven European countries (France, Germany, Great Britain, Greece, Italy, The Netherlands, Spain). A sample based on a large number of countries with different agro-food traditions and, consequently, the participation of several research teams is almost inevitable in order to develop an analysis of a representative sample of: (i) The large range of quality signals; (ii) The particular economic modes of organisation supporting these signals, since organising modes depend partially of historical and institutional factors.

1. Governance Structures and Credibility of Quality Signals

¹ A ongoing study for the European Community evaluate more than 1900 "collective" brand name in the EC countries. The seven countries of our project represent 85% of theses "collective brand names".

1.1 Quality Uncertainty, signaling and the credibility issue

1.1.1 Quality uncertainty and signaling issue

The consumer doesn't know automatically the quality of the product, or the accuracy of the information supplied about the product characteristics. The obstacles increase with the proportion of characteristics which are either experience characteristics only identifiable after the purchase on use, (for example the tenderness of meat), or confidence characteristics which cannot be identified even after the purchase (for example the vitamin content). Economists, following Akerlof (1970) have shown that the experience and confidence goods are liable to very strong adverse selection problem. Adverse selection leads to the result according to which goods poorly identifiable in the market cannot be valorised. The market may even thus disappear or simply never be created.

Economic theory provides tools for analysing the working of markets subject to this sort of information asymmetry. Theory shows, in particular, that the use of a credible signals of quality re-establishes part of the efficiency of the market, due to the reduction of the information advantage held by the seller. This leads to the question of the nature of the mechanisms capable of generating and maintaining the credibility of the signal, i.e., capable of gaining the confidence of the consumer.

Many works have studied the commercial brand names, more generally the "quality signals", a method available to the producers to signal the quality of their goods on the market (Akerlof, 1970, Klein and Leffler, 1981, Shapiro, 1983). The industrial economy essentially studies the part the price plays in the quality signal. As far as we are concerned, we have adopted a better definition to be able to account for the legal and empirical diversity of the "quality signals". We understand the quality signal to be an **information summary** (an overall knowledge or a concentration of learning) that is reinforced by product displays, or a family of products, from a signal allowing consumers to identify and recognize the product : a logo, a symbol, a name, etc. The information summary relates to one or more of the product's characteristics (or to the production activity), they are not directly visible at the time of purchase, or even at the time of use and that can be controlled by the offer at one stage or another.

In spite of the great diversity noted in these information summaries, they are all studied by an economic analysis in terms of signals. When the quality of the goods cannot be evaluated before purchase, the consumers are confronted by an offer of goods of heterogeneous quality. A producer has the opportunity to reduce this asymmetry of information by signalling the quality of his goods, for example, by a brand name. The brand name gives an indication of the quality because there is attached to every brand name a standardization of characteristics of the goods sold under that brand name (Barzel, 1982, Klein and Saft, 1985). This standardization supplies information to consumers who anticipate a reduction in the variance of the level of quality². For example, standardization of the quality of the goods is at the origin of franchise chains. A consumer expects to find the same product in two different units of the same franchise chain. The specifications of an agricultural red Label, or "specifications" between producers, also corresponds to such a standardization. These consumer anticipations form the reputation of the brand name or more generally the quality signal. (Shapiro, 1983). However, insofar as the quality is a decision variable for the producers how can it be guaranteed that the quality of the goods sold under a brand name will remain constant and homogenous ? More generally, how can the consistency be assured between the denoted quality (announced or promised) and the quality supplied ? This is the **credibility problem of the quality signal**.

1.1.2 Quality Signal as "Contract": the Credibility Issue

The credibility of a quality signal can be studied by taking into consideration that a quality signal is a "contract" between the producers and the consumers, that is a **group of promises for the future quality of the goods** whatever the definition we give to this quality. This can be a promise of a level of consistent quality in space and in time. It can also be the promise that the products do not contain a certain element, that the product is manufactured according to a certain technology, or that the product comes from a certain geographical area.

This interpretation of a quality signal as a contract was suggested by Klein and Leffler (1981). Its goal is to permit an analysis of the contractual mechanisms that could encourage the producers to produce the quality at the level announced by the signals.

Two distinctive features of this interpretation of the quality signal as a contract should be emphasized. First, the contract between the producer and the consumer is essentially a

² We have to specify that a commercial brand name is not inevitably a signal of superior quality but indicates rather a stable

"implicit contract", *i.e.* non codified in a written document. Respect for this "contract" can therefore not be assured by turning to the courts and would come from an economic calculation on the part of the producer³. Then, the promises contained in the contract concern only the producers decisions. No obligations exist for the consumers in which the only decision variable is the act of purchase (and its reiteration). The problem of moral hazard on the choice of the level of quality by a producer can therefore be interpreted as a problem of the credibility of his contractual obligations to quality. **This credibility reflects on the producers ability to guarantee that he will carry out his commitments for the quality of the final products.** We distinguish three leading types of mechanisms, that can be combined.

The reputation mechanism.

It rests on the construction of a brand name image thanks to repeated purchases. This repetition succeeds in associating the quality of the product to the name of the one who manufactures and/or sells it.

Let us consider a case in which an individual producer owns a brand name. We suppose that a producer sells a product that he announces to be of superior quality, that he is the owner of a commercial brand name and he, himself, assures the distribution of his product⁴. Alternately, we could consider a situation where the producer uses a distributor's services to market his goods but the latter has no influence on the quality of the goods (for example through a special packaging).

An incentive mechanism guaranteeing the consistency of the quality was studied by Klein and Leffler (1981) (see also Shapiro, 1983). It is an application of a reputation mechanism for the problem of moral hazard on the quality. Klein and Leffler then point out that (i) perfect communication between consumers is not sufficient to guarantee the level of quality, (ii) the threat of non repetition of purchases is not a credible threat to guarantee quality if this sanction is not accompanied by a monetary loss for the producers. For a producer to have incentive to produce a level of quality superior to the minimum level and in a continuous way, it necessitates the existence of a "price premium" that would reward production of superior quality. The actual value of the price premium is defined by Klein and

level of quality, *i.e.* given and consistent in space and in time.

³ This allows to distinguish the commercial brand name from the producers proposed guarantees that accompany the sale of his goods.

⁴ The last hypothesis does not take into account the eventual problems regarding respect of quality commitments linked to the delegation of the use of the brand name (agency costs).

Leffler as the quasi-rent necessary to guarantee a level of quality. It represents the economic value of the individual producer's reputation.

In the case of non-respect of the initial contract commitments, the consumers will not renew their purchases. The producer therefore loses the quasi-rent linked to his reputation. It is the threat of termination of the relationship by the consumer that makes the implicit contract self-enforcing. (Klein et Leffler, 1981). It is in the interest of the producer not to deceive consumer anticipations⁵. The greater the reputation of the brand name, the higher the harm in a case of failure⁶: loss of market shares, but also a loss of profit from authorized investments. In this case, it is the profit from the authorized investments (for example publicity expenses or the creation of a distribution network) that create and maintain the image of the threatened brand name.

Reinforcement of reputation by a method certification mechanism.

The commitment that the signal represents often demands that the business use extreme monitoring of the consistency of the quality. The products that are frequently purchased, in this respect, represent a challenge to the business. For example, the reputation of L'Oreal, forces this firm to seek out the zero fault, *i.e.*, to push their precautions to extremes before the launching of a new product. The reputation mechanism does not automatically ensure that the production apparatus within the firm manufactures all products in accordance with this specifications. This problem seems even more difficult when all or part of the production of a product sold under their own brand name is delegated to "partners" (sometimes they are also at the same time competitors). Other management systems of product conformity are therefore put in place to reinforce the guarantee by reputation. For about ten years, the manufacturers or the distributors that have brand name strategies have adopted new methods of quality management. Within the framework of the management of products under brand name, the goal is for a future result of "zero fault". It is in this perspective that the procedures of Quality Assurance Certification are used by the retailers. In fact, when a retailer delegates the production of a product, sold under his own brand name, to a manufacturer he is dependent on the quality of the manufacturer's work.

⁵ The repeat purchase mechanism can work even if the purchases are not made by the same consumer. The consumers can relay information between them. For the repeat purchase mechanism to work, it is necessary that the horizon of the relationship between the producer and the consumer be infinite or, in the case of a limited horizon, there should exist an uncertainty of the end date of the relationship. In the opposite case, comes the problem of a reverse recurrence.

⁶ Of course the penalty by the marketplace will be even stronger if the legal responsibility is in question ; the law reinforces

The control of this quality is therefore strategic : (1) in commercial matters, to safeguard against a deterioration of their own reputation ; (2) in legal matters, to protect themselves from penal responsibility.

Brands of Certification Systems.

They consist of supporting the credibility of a quality signal by intervention of a formal institution, outside of any market transactions. In the case of "brands of certification", the credibility of the signal rests on the formal monitoring of conformity to the referential; *ex ante* monitoring (accreditation of the producers) and *ex post* monitoring (verification of the products) that rely on the intervention by formal institution, public, private or both, but outside of the agents implicated in the transaction. The quality signal will therefore look for support in an independent outside organization, that have the functions : (1) of specifying the characteristics used in the standard, (2) of monitoring the conformity to these characteristics, (3) of issuing a certificate of conformity. Such an "institution" can get its legitimacy from the State guarantee (case of names originating in Europe) or from the reputation acquired by an independent private organization (The Underwriters laboratory in the USA), commit to their own responsibility, including on the legal level⁷, on the basis of their technical expertise, on the reliability of its monitoring and, if necessary, of its ability to sanction the users of the signal. Thus, the "Red Label" signal, developed in France in the poultry sector, guaranteeing an objective level of superior quality and based on an official certification by a certifying organization.

1.1.3 The Diversity of Credibility Issues

The problem that arises is different when, as in the case of the red label or a franchise chain, use of the brand name is shared by many producers. When a quality signal is used by several legally autonomous producers, the consumers always take the signal as an indication of quality, but the signal's reputation is therefore a shared reputation (Tirole, 1996). The consumers react to this collective reputation rather than the individual reputation of each producer. Under these conditions, the common quality signal is a public good for all of the producers. Each individual producer has incentives to encourage others to make the costly

the reputation effects.

⁷ Of course, the reputation mechanism may also be applied to outside organizations themselves. Moreover it is one of the differences between France and certain European partners regarding certification organizations : the first one submits that the State should intervene to give its guarantee, while the second one maintains that it is necessary to leave out the certification

investments required to maintain quality while shading one's own effort to do so and free riding on the collective reputation (Klein, 1995, Tirole 1996) producer being legally autonomous, is a residual claimant and tries to maximise the profits of his company. The individual behaviours toward profit maximisation can have harmful effects on the other producers that use the same quality signal (Lafontaine and Raynaud, 2000). The profits of all the users therefore become interdependent because they use the same quality signal. One producer's decline in quality will have consequences on his profit as well as on the profit of the other users of the common quality signal. There exists therefore negative externalities that introduce a situation of dependence between the different producers. **With regards to contractual hazards linked to the use of a common signal, how can consumers be guaranteed a respect to the quality commitment by the producers, i.e. that the "brand name contract" between producers and consumers will be respected ?**

1.2 Governance Structure as a vector of quality signal's credibility

Signalling and guaranteeing the quality of a product to the consumer by providing some guarantee of its origin, either by product certification, by brand name, or through spreading specific information about the product, requires the information being transmitted without deformation through the various steps of the agro-food chain. Defining and guaranteeing a final product necessitate strong co-ordination among producers which, in turn, must allow the transmission of required technical information (particularly the definition of technical references and protocols of control) among all operators in the production chain. The problem raised is thus typically a problem of organisation.

Studying the diversity of modes of organisation implemented to deal with these problems necessitate the introduction of a distinction between two different situations :

⇒ The *first one in which*, the quality signal is owned by an individual firm (processor and/or retailer). Most of brand names are of this kind. The question to clarify is then the following : What are the organisational modes implemented by this firm with its suppliers and/or retailers in order to assure the quality of the final product ? In such situations, we will speak of the vertical organisation of transactions. Several options

market, the competition between organizations and the reputation mechanism eliminating ineffective certifiers.

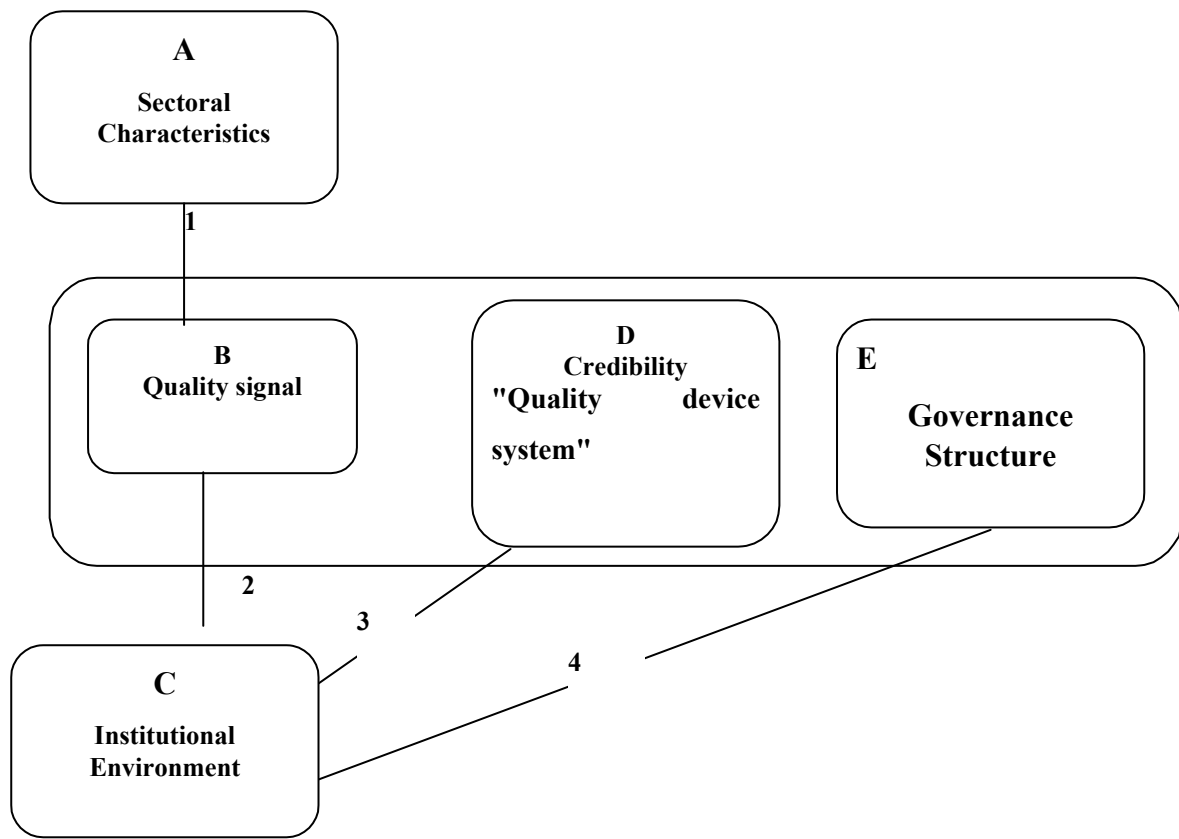
are available : vertical integration in the usual meaning of the word, long-term contracts, spot markets.

⇒ The *second situation is one in which* the quality signal is owned by several legally autonomous producers (as in the French "label rouge"). This type of signal is observable when several small or medium sized producers co-operate to develop common strategy of differentiation. The underlying problem then becomes : What are the organisational modes implemented to deal both with vertical governance of the "chain supply" and the horizontal co-ordination due to sharing brand name among producers operating at the same level in the chain supply at a same level ?

1.2.1 The Analytical Framework: Quality Signals, Governance Structures and Institutional Environment

The general hypothesis is that the governance structures that are designed in the vertical chain try to guarantee the quality to the final consumer. The governance structures are therefore studied as a means of safeguarding for the quality signal. The analysis is essentially comparative. This involves putting together an analysis which would allow for comparison of the different governance methods. To respond to this objective, it is necessary to study all the variables that can influence the choice of governance methods.

Five series of variables (A, B, C, D, E) are adopted to try to explain the choice of governance methods. The choice of these variables is motivated both by theoretical considerations of organizational methods and by empirical observations (emerging from marketing and law) regarding the quality signals. The following figure represents the positions of the different analysed variables.



They should allow for :

- a description of the vertical chain in the considered sector, the different stages of the production and processing operations, the technology used in these sectors ;
- a description of the industrial organization (the industrial structure) in the considered sector : number of firms in the different links, degree of concentration, number and types of rival quality signals. This last information helps us to understand the strategic choices of the agents as far as the product quality is concerned. For example, in a market where several large businesses and a "competitive fringe" co-exist, the only possible quality strategies of differentiation for "small businesses" is often the creation of a common quality signal.

The concept of **institutional environment**⁸ is defined by North (1990). We try to evaluate the heterogeneity at the institutional level between the different countries. A difference in the level of institutional environment could have an impact on both the choice of

⁸ The sectoral files also had a duty to supply information on institutional environments in the different sectors of different countries.

governance methods and quality strategies developed by private agents. (see annexe 1). For example, the State could originate the creation of certain official quality signals. In this case, do the authorities impose a particular coordination method on the implicated agents ? Does a degree of freedom exist with regards to contractual choices ? In the same way, the national regulations of quality or of market organization (or of a particular network) could influence the agents quality strategies. This group is, in principal, at the origin of a heterogeneity between the different studies of the cases researched by the teams.

1.2.2 A Reduced Form Model: Linking Quality Strategy and Governance Structures

The question of vertical "coordination perimeter" arises from a statement: the discrepancy between the needs of the project and the framework of the transaction cost theory analysis. Let us begin by the needs of the project, in particular the analysis of case studies. For the majority of the quality signals present in the case studies that we will be examining, the quality of the final product can be influenced by different agents along the vertical chain. The study of the consequences of the creation of a quality signal on the vertical co-ordination make us studying not only one transaction but a chain of transactions that follow one another in a logical order determined by the production processes. The "coordination perimeter" reflects on the different transactions that are important to study and therefore on the governance structures that surround them. Some transactions are more interdependent than others and this interdependence is to be the subject of a more meticulous co-ordination than in the case of independent transactions⁹.

With regard to this problem, the transactional framework is partially unsuitable since it essentially concentrates on the governance of a particular transaction. With regard to the attributes of the transactions identified by Williamson, there can exist a variety of transactions (different attributes) but all the transactions have the same subject (for example the supply of coal to an electric power station). In our project, we should study a chain of transactions. For example, it would be important to study the stocks of live animal slaughterhouses abattoirs but also the transaction between the abattoir and a second processor that will package them.

⁹ To our knowledge the only theoretical reference relating to this problem is the one of Milgrom and Roberts (1992) when they speak of "*connectedness of the transaction to other transactions involving other people*" (p. 30, 32-33). See also Spiller and Zelner (1997).

2. Empirical Analysis

2.1 Overview of the Case Studies

2.1.1 A cross sectional and international comparison

2.1.2 A simple taxonomy of case studies

2.2 The governance of quality in vertical chains: empirical evidence

2-2-1 General presentation, attributes of quality signals and influence of the vertical chain for three case studies.

A research project on agri-food networks gives empirical evidence on the way economic agents implement collective strategies through interorganizational relationships. This research will serve as a basis to conduct our analysis of network governance. Most of these collective strategies are 'quality strategies', which objective is to enhance the perception of the final product for the consumer. Generally, these strategies are twofold: first the participants try to create a signal (brand, common label, official quality sign etc..); second, to be credible, participants in the chain must be able to develop and safeguard specific quality attributes (origin, safety, animal welfare, pesticide-free or organic products..). Considering the influence of the participants in the chain on quality definition, the partners in the network will have technical and marketing interdependencies to be solved by specific institutional designs. According the suggested framework, governance features will be analyzed through two items: authority and relationship mechanisms.

Saveol is a collective brand name involving more than one hundred independent tomato growers in Brittany and the Pays de Loire regions in France. Created in 1981, the Saveol brand is now the leader of the French fresh tomato market with a strong image of pesticide-free product. The market share of the brand is approximately 12% (70,000 tons in 1999). Under the brand name Saveol there is in fact a complex network organizational form. Producers are the basis of this organizational form. They are highly specialized in tomato production and have heavily invested in greenhouses. These producers are organized by four producer groups. The role of these producer groups is also to organize the production technically and the sorting of the products. These producer groups are also the four main shareholders of a private firm called SMO. This firm is the owner of the brand name Saveol and is in charge of the marketing strategy (promotion, sales...) of the whole organizational form (Philippe and Sauvé, 1999).

Consequently there are two transactional levels in Saveol: the first one between producers and producer groups, the second one between producer groups and SMO. The first level illustrates a classical producer/producer-controlled organization relationship. Its main feature is the existence of marketing agreements which specify tomato quality and supply conditions for each member. The second level shows the creation of a new multi-owned firm by four independent cooperatives. The eight members on the board of directors represent these cooperatives. The producers belong to the same organizational form: the decision process is unified through the leadership of producers and through their double delegation of power. Above all, this example depicts the main feature of a network: independent agents dealing with collective assets.

Saveol puts forward two main attributes. Firstly, the brand name seeks to point out the absence of pesticidal residues, with the objective to provide an image of safe products for health and environment. To do so, the Saveol group has developed a specific farming program with strict specification for producers and input suppliers. Secondly, Saveol brand name also has the characteristics and image of a top of the range tomato, with a constant and homogeneous in time and space visual quality of products. Moreover, the group developed several type of new products (among them the tomato in bunches, a market innovation launched in 1995), placing the brand as one of the most innovative of the market.

Considering the whole vertical chain of production, tomato growers appear to have a major influence in the definition of these attributes, more specifically, for pesticide-free feature and visual quality, and to a less extent for homogeneity of products. The cooperatives mainly influence homogeneity, through the use of sorting and packing information system. Other participants downstream the chain (transporters, wholesalers, retailers) have a crucial role not in the definition of quality but on its maintenance over time (for example for visual quality).

Cassegrain®

The Bonduelle group is the leading company in Europe for processed (canned and frozen) vegetables. In 1989, the group bought another company, Cassegrain, and, within a few years, created a brand name of canned vegetables clearly positioned as a top of range product, on a market with undifferentiated products. This brand name benefits from a strong awareness and has a constant and clearly superior organoleptic quality. The quality of Cassegrain products rests greatly on the intrinsic quality of the raw material. The cropping operations are precisely established, closely followed and registered. It supposes also the definition of specifications for growing and harvesting susceptible to influence this quality. The processing stage is very simple and well known; its influence on the final quality of the product is limited and no different from the other factory of the group.

The organization of the Cassegrain network is structured around the processing factory. This factory is totally dedicated to the brand name and is supplied by one producer organization (hereafter PO). This producer organization is a syndicate regrouping all the individual producers delivering to the factory. These producers numbered 330. On a given farm, the cropping area dedicated to the factory never exceeds one seventh of their total area. A formal institution, called the Joint Committee (hereafter JC), completes the network. This JC is composed of four representatives of the PO, and two factory representatives. They meet occasionally in winter but every week during the harvesting period.

Created in the 60's, Cassegrain brand name and the factory site connected to it has been bought to a competitor by Bonduelle group in 1989. Since 1995, the company has clearly positioned the brand as a top of the range product, with a superior organoleptic quality and an original visual identity (logo, rectangular box...). Thanks to extensive promotion

campaigns and its long time reputation, Cassegrain has a strong image for these attributes, both for retailers and consumers.

Within the chain, the major influence on quality definition comes from the producers. Indeed, the final quality of Cassegrain vegetables rests greatly on the intrinsic quality of raw materials. This quality is mainly explained by the cultural operations conducted in the fields (choice of dates, of varieties, of cultural practices) as well as by the choice of a specific pedo-climatic zone. The other attributes rest on the cooking and packing operations, internally developed by the Bonduelle group with a factory totally dedicated to Cassegrain products. Being a non perishable product, other participants in the chain have no or a very limited influence over quality attributes.

Challans®

Unlike the two preceding examples, the Challans case study combines two elements: the "Label Rouge" logo (hereafter LR), and a collective brand name for poultry products, Challans. Due to this association, LR Challans is at the same time a certified *and* a collective brand name. This specific LR denomination sends back to a product which characteristics are certified by a third party. Since 1994, the brand of certification is included in the EU regulations as an official quality signs (PGI products).

Therefore, two organizations are at the heart of the Challans network: on the one hand, the quality group, and on the other hand the farmers' group. The quality group assembles the representatives of the different stages of the production and is in charge of "the deposit and use of the original brand name and of quality". The farmers' group has a legal status of a producer organization, which role is to manage and plan the production of independant poultry growers.

As an official sign of quality, Label Rouge chicken is a sign of superior quality. Consequently, the national regulation defines a set of requirements consisting in specific growing methods (for instance chickens reared in the open air), diet (feed quality with a minimum of 75% cereal), slow growth breed, or slaughtering age.

The superior organoleptic quality and the production process are the two informations made available to consumers. Considering the three following items, farming methods, feed quality, and physical aspects of the products, it is possible to show that some agents have a strong influence on these attributes. Growers obviously have an important impact on growing methods, while feed providers play a major role in the quality and characteristics of feed. Downstream the chain, abattoirs are at least important for the maintenance of quality, as well as , to a less extent; wholesalers and retailers, that may affect the visual quality of the chickens through their handling and storage activities.

2-2-2 Contract incompleteness within the chain and authority devices

How to formally identify a central party? In some cases, an assembly of co-owners will be in charge of strategic decisions. In a sense the franchisees create their own franchisor. In other cases, there is a negotiation structure which owns the brand, like in cooperatives. But even when the central party is a single private firm, an interaction process and structure may be observed.

In the Saveol case, the interorganizational architecture leads to a central party, SMO, which role is to monitor the network. This central party will possess a certain number of rights: for example the right to control, exclude or co-opt partners. Through a delegation of individual rights, this negotiation structure will decide the strategic orientations. The partners in the network co-invest in a specialized company, in charge of the monitoring. Doing so the partners create a type of marketing joint-venture. It is possible to put in evidence a pyramid-like authority structure within the network: each level in the pyramid has complementary roles. This case shows a dichotomy between strategic and operational decisions. Formally, this 'central party' may take different forms. But its role is always to create a private order within a group of legally autonomous firms or actors.

This authority scheme is a negotiation structure, where growers delegate their power to producer groups and to SMO. However there is a clear breakdown of tasks between these two levels: the first one deals with technical and operational aspects, while the other is in charge of the marketing strategy. So a clear understanding of how delegation works inside Saveol is a determining factor. The basic feature of Saveol's decision device relies on the recognition, by the producers, of an authority and subordination principle. Firstly, this notion of authority, key

concept in the study of networks (Ménard, 1997), is found between producers and their cooperatives: the producers delegate this decision right to the board. Secondly, the cooperatives themselves delegate the right to sell the products and to define the marketing strategy to SMO.

In Cassegrain, the authority system is highly centralized by the Bonduelle group. Indeed, the main decisions concerning the brand as well as the list of specifications are in the hands of the marketing manager. Some decisions are internal but are made (only) after coordination between the marketing staff and the factory: this is the case, for instance, for volume planning. In spite of this strong centralization of decision rights, the Bonduelle group is dependent on its suppliers, the vegetable growers. Even if the final decision is made by the group, an important process of interaction and negotiation occurs through the formal structure called the Joint Committee (JC). The JC acts as a collective authority, where producers and processors negotiate and make decisions for the entire production basin, as the harvesting period moves along. It is in this JC that prices are negotiated. The producers do not act directly on the harvesting program but nothing is decided without their agreement at least implicit or *a fortiori* against their will. This authority structure will be qualified as an *interaction* structure.

Due to its two-headed structure, the Challans case shows a clear dichotomy between two decision mechanisms: the farmers group on the one hand, and the quality group on the other hand. Every member of the farmers' group may be involved in the general assembly, who elects a board of directors. The board of directors represents the collective authority of the group, with the power of exclusion over members of the group. In addition, the quality group, who is the legal owner of the brand, also has a general assembly comprised of all the members of the syndicate. The assembly names the members of the boards of directors. In this board, the farmers and the other parties of the network have each half of the representatives. In parallel, the quality group is also constituted of a certification committee, with 7 representatives, which 4 are outside persons.

The design of an authority structure can be explained by several factors. We suggest a few of them, based on empirical research:

- The history of the system: in many cases of differentiation strategies, agents are already

specialized. Consequently, it is not possible to reallocate the assets and the building of the network is, in a sense, contingent on individual history of its constitutive partners.

- The type of strategic assets to be created and managed in the network (brand name capital, technical or R&D assets...). Some assets can be easily shared, while others are intrinsically divided between several partners.
- The relative size and importance of partners in the network, or their situation in the chain, leading to a 'natural' leadership within the network. Achrol (1997), for instance, explains that the network is "organized around a focal organization best positioned to monitor and cope with the critical contingencies faced by the network participants in a particular market" (Achrol, 1997:60).
- The role of institutional environment: in some cases, the public bodies may decide to create a third party. Doing so, they place the network in an interdependency situation regarding the third party, which acts as a pilot or a strategic center.

2-2-3 Control and incentive systems as enforcement mechanisms

The coordination mechanisms put in evidence in agri-food networks are a combination of what the study has called 'enforcement mechanisms'. The three case studies show a wide diversity of these mechanisms, but with some invariants.

Planning and adjustment procedure. In a situation of relational governance, an entity (for example the franchisor in a franchise system) has the formal right to make decisions about internal functioning and the evolution of the cooperation. It could be a modification of a brand specification list, investments in product promotion, launch of a new product. These decisions will be made in many cases by the central party. In the Saveol case, these supervision decisions are highly centralized (Sauvée 2000). The SMO is in charge of the main marketing and quality control decisions. The board of managers defines the list of specifications. More importantly, this board is able to impose a plan for product segmentation (for example the percentage of vine tomatoes for the Saveol group). This plan is based on market predictions. Moreover, the board will define an annual area increase. SMO constitutes a central party which is responsible for the monitoring of the brand. On the one hand, the central party chooses the key decisions that enable the group to create a rent (quality and volume decisions). On the other hand, this central party controls the producers' application of

the list of specifications.

In the Saveol group, it is paramount to recognize that boards act as an 'assembly of producers'. This is why this planning procedure, unlike integrated firms, is based on constant negotiation. This procedure is necessary to adapt areas because of market uncertainty: nobody can foresee the development of markets (both in qualitative and quantitative aspects) and contracts are therefore incomplete. But this procedure is also a means to protect the rent from internal and external threats.

In Cassegrain, two people are in charge of planning. The marketing manager is in charge of the main decisions concerning the brand: store promotion, advertisement, packaging. It is strongly emphasized that no decision that may affect the brand image can be made outside the marketing team. The sales manager is responsible for the decisions concerning retail prices, volumes and relationships with clients. Unlike the marketing manager, a process of interaction and negotiation is possible for these decisions, and especially for volumes. The total production of canned food is planned at the level of the marketing manager, according to the sales predictions and contracts already signed. These predictions are then passed to the factory under the form of a production program. But, considering the strong qualitative requirements for the product, the final program is frequently limited in volume.

In Challans case, strategic decisions are split in two. The farmers group is in charge of the quantity adjustment within the network. According to the market needs, the commercial orders are passed on to the abattoirs and then to the farmers' group. The farmers' group organizes the planning of production between its members. Individual producers do not have the right to decide of an increase of their production. The quality group is in charge of the decisions about annual investments for advertising and marketing, as well as for the creation of specifications and launch of new products.

Here a central hypothesis is suggested: in networks, the strategic planning decisions, i.e. the decisions for which the role and impact on the collective value generated by the network is significant or high (in the given examples the value of the brand names), are centralized in a formal structure. Without this alignment between strategic decisions and centralization of decision rights, the value cannot be sustained in the long run. But as soon as

this principle is fulfilled, other types of complementary decision structures, more or less centralized, are possible.

Enforcement mechanisms and organization of control. Saveol relies mainly on self-enforced mechanisms. Self-enforcement is defined by Ménard as "contracts properly designed, with their implementation depending on built-in mechanisms" (Ménard, 1998:9). To be efficient, these contracts must be of relatively short term and easily reproduced. In fact, self-enforcement works for transactions close to market conditions. Examples of self-enforcement are similar to internal markets, where the price system is the main mechanism to insure behavior conformity.

Self-enforced mechanisms are never pure, but instead are combined with other forms of enforcement mechanisms. As soon as reputation is created and based simultaneously on individual and collective behaviors, the organization has to set up incentive and control mechanisms. Separability and programmability are the two key concepts helping to understand the building of these mechanisms (Sauvée, 1998:33). Separability is the ability to observe and identify who has done the work; programmability refers to the ability to observe what and how the work is done. This helps to understand why programmability and separability are important features of self-enforced mechanisms: individual benefit is directly linked to individual output, as in market relationships.

In Saveol, the adoption of a common technical scheme and a well-defined list of specifications are a way to limit programmability. Complementary sorting techniques and centralization of production at greenhouse and cooperative levels are the main mechanisms that are used to control and to give incentives to producers. It requires the setting up of an efficient information system, and the design of information systems has to be considered in this perspective, as well as the information control configuration.

It can be suggested that the creation and protection over time of the rent (i.e. brand reputation and premium price for branded tomatoes) explains the efficiency of the system. As long as an individual producer finds an incentive to follow the rules, he will accept authority. This network operates through mutual consent and commitments among partners. The fact that in the Saveol group, producers are represented on all the boards (in cooperatives' and in SMO's boards) reinforces the incentives.

In Cassegrain, the main incentive mechanisms are found between the factory and the PO, through a global contract and adaptation clauses negotiated in the JC. This contract specifies the qualitative characteristics of the exchanged vegetables, the quantities of vegetables to be delivered, the areas to be sown, the payment system, regulations for indemnity in case of abandonment of the areas. But it will never indicate the dates of delivery, this being decided by the JC during the harvesting period.

The contract is for one year, with no tacit renewal. Content of the contract and of specifications are re-examined each year, during annual negotiations. The payment of producers is based on a global receipt by hectare. For each crop, the JC establishes a receipt by hectare, then calculates its output by a reference technique (average of the last three years + security for loss of anticipated surfaces). From that, they deduce the surface to be sown and the gross price of vegetables by kilo. The main control procedures are made *ex ante*, with the specifications for field procedures. The control of the quality of products is assured by technicians of the factory, during the entire growth process of the plants.

The search for the highest observability of task performance (in a broad sense) explains the choice for enforcement mechanisms. This highest observability may be obtained by a mix of *ex ante* or *ex post* control techniques, or with incentive systems, according to the characteristics of production and transaction processes. Another interesting feature of incentive mechanisms is the role of quasi rents generated by the brands. The level of quasi rents and its redistribution is determined by the strategic decisions of the networks. This links between the stream of rents and financial rewards is a way to incite the partners in the network to follow the rule: then this is a substitute for control mechanisms. Possible in Saveol because of the multi-owned structure of the strategic center, it is more difficult in Cassegrain, which has to rely on extensive control schemes.

In Challans, the prices for branded products are centralized by the farmers' group and negotiated twice a year during meetings. But, as the negotiations of sale prices is decentralized at the level of each individual abattoir, no clauses in contracts between members directly links the level of quality and the determination of prices. But, due to a price premium at the consumer level, a rent linked to the use of the brand will exist. The farmers' group has a central role in allocating this rent between the growers. The group has in particular the power

to arbitrate between an equirepartition between farmers or a more performance-based repartition.

The organization of controls is done by the certifying organization. The controls are ex ante, through an accreditation procedure for all agents who want to integrate the network. The controls are also made ex post, over the specification of the different agents.

Dispute resolution mechanism. In the Saveol case, disputes may occur for different reasons. Dispute settlement mechanism has to solve conflicts between actors. One can guess that because of contract incompleteness and potential opportunistic behavior of producers, such as the free-rider problem, conflict situations are likely to occur. This is the case in networks, where autonomous actors share a common property. Consequently, foresighted actors will set up arbitration mechanisms. The use of courts is possible, but this solution is often either costly or difficult to implement. If the internal management of conflicts does not end in an agreement, it is always possible, in the last resort, to deal with courts.

In the Saveol group, arbitration mechanisms are found mainly at the cooperative level. Indeed, the possibility of exclusion from the cooperative, appreciated as an incentive mechanism, is fundamental. This may occur if internal rules concerning for example the total supply rule or the list of specification for tomatoes are not respected. The major possibilities of conflicts arise, at the production level, from two types of situations: opportunistic behavior and disputes about internal rules (or the way they are implemented). Conflicts due to the well known free-rider problem are practically impossible in the Saveol group: an individual producer is not able to sell his tomatoes outside the cooperative because no alternative marketing channels are available. Disputes concerning internal rules are limited and the Saveol group appears to be relatively stable in the long run.

The importance of corporate identity for individual producers is probably the first reason for such stability. The fact that cooperatives are the basis of the system explains this situation. Indeed cooperatives are long lasting structures, well adapted to the agricultural context. Moreover internal rules are clear, without ambiguity in their applications and well accepted by producers.

In the Cassegrain case, disputes may arise when unforeseen events disrupt the campaign operations, that can be climatic phenomenon or diseases of the plant. Conflict management is foreseen in the contract. But disagreements are rare, thanks to mutual trust and a great custom of working together throughout the year. Two mechanisms allow for conflict resolution between the factory and producers. The first mechanism is the trust relationship between the field manager and the farmer. The second is the existence of the JC with an implementation of regulations done with time. In the case of, for instance, a new disease, a permanent interaction and the exchange of information assures quick adjustments and the adaptation of both sides. The following year, the JC arrives at a compromise and decides on the implementation of new regulations (changing price, new crop specifications...). In practice, these regulations are imposed on all and the individual farmer is at fault if he is not able to adapt.

Once a year, the general assembly of the producer organization enables the sharing of the possible differing views of each producer and to reach a compromise. The situation of collective actors of the PO is therefore strengthened.

In Challans, the resolution of conflicts is done through two structures, the organization of producers and the quality group. For the moment, no important conflicts exist among the different members of the Label Rouge system in its entirety. Nevertheless, the relation between the LR system and the retailers is sometimes difficult, mainly because the retailers would like to enter into the system with the objective to capture a part of the rent. Doing so could lead to a decrease of the reputation because consumers usually associate the LR chicken attributes with the central role of producers in the chain.

(Some concluding comments)

On the basis of the in-depth case studies, the suggestion is that the governance in networks refers to two critical dimensions. Firstly the recognition of an authority principle and an authority structure: this structure is to be identified in the specific allocation and configuration of decision rights within the network; secondly, the study of governance mechanisms between actors in the network is done through three generic mechanisms : planning and adjustment, incentives and controls, litigation. Doing so, it is possible to highlight some common features. These agri-food networks show a similar process of

structuring competitive positions through interorganizational relationships and strategy.

Finally, it is thought that through this empirical work, the nature of network itself is clarified and will be defined by the existence of a specific decision mechanism called authority, and by enforcement mechanisms of which the main features are to balance *ex ante* and *ex post* devices. The design principle for these hybrid forms find its logic in the choice of a specific quality strategy.

3. Conclusion

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