Governance mechanisms and certification in specialty beef production: the case of Aveyron and Ségala Veal (ASV) in France

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Abstract

Focusing in guaranteeing information and property rights, this study aimed to analyze the governance mechanisms among agents of a specialty beef chain in the Aveyron and Ségala regions (France), using a qualitative approach and semi-structured interviews. Results indicated high asset specificity and dimensions subjectively measured in the transactions, such as organoleptic characteristics. The adoption of less complex governance structures, instead of vertical integration, became feasible through the presence of three key organizations, one that defines quality and production parameters (INAO), another one that certificates these parameters (Qualisud), and finally a key agent that coordinate the chain (IRVA). It is the joint action between these organizations that makes it possible to coordinate the chain while measuring and guaranteeing information and property rights on dimensions that are difficult to measure even in specific assets. It was concluded that the certification process support value distribution since they act as dimension measurers and guarantors of the asset involved in the transaction, reducing transactions and measurement costs.

Keywords: Transaction costs. Mensuration costs. Value Distribution.

1. Introduction

Agri-food chains face social, environmental, competitiveness and food security challenges (GILBERT, 2001; KALFAGIANNI, 2015; JOSEPH; MARMIER, 2018). Particularly in France, there are problems associated with quality degradation by the mainstream industry (VALCESCHINI; MAZÉ, 2000), encouraging the pursuit of the protection, safety and enhancement of superior quality products and territorial appeals. In the French beef chain there are problems associated with animal health, not differentiated remuneration depending on the characteristics of the final product due to lack of information about the chain, low return to producers, difficulty in creating value, and high production costs (GOY-CHAVENT, 2013).

Beyond tackling the obstacles, agri-food chains need to preserve its French production and offer products with superior quality, being territory, by a Controlled Designation of Origin (AOC – *Appellation d'Origine Controlée*), (AOP – *Appellation d'Origine Protegée*) and Protected Geographical Indication (IGP – *Indication Géographique Protegée*); superior quality attribute set – *label rouge*; traditional production; and conformity and environmental labels (mountain, organic production – *agriculture biologique*) (GILBERT, 2001; SPADONI *et al*., 2014; JOSEPH; MARMIER, 2018). These arrangements involve efforts in quality and safety concerns, here being called specialty beef production.

This production may involve greater efforts such as labor requirements, higher production costs and lower production yields (JOSEPH; MARMIER, 2018). In this context, the continuity of these subsystems based on quality depends on an appropriate reward, and therefore on the return on investments made by the producers (MALORGIO; CAMANZI; GRAZIA, 2008; FAO, 2014). Meeting the demand of the consumers requires the transparency of the information (JOSEPH; MARMIER, 2018), requiring adequate governance mechanisms (TRIENEKENS *et al*., 2012).

In what comes to production costs, in theory, when production turns to differentiation these transaction costs can be higher. That is because instead of commoditization, there is a greater asset specificity, and complexity in coding information, requiring governance structures of higher complexity (CALEMAN; SPROESSER; ZYLBERSZTAJN, 2008; GEREFFI; FERNANDEZ-STARK, 2011; CALEMAN; MONTEIRO; HENDRIKSE, 2017). This implies an exchange of information between the actors in a chain, making the history and

origin of the products visible and transparent (GILBERT, 2001). According to Barzel (2005), information coming from measurement enables the distribution of property rights among agents. In cases where measurement is costly, adopting a third-party certification with a high reputation can be effective in dissemination of information, reducing measurement and transaction costs (GILBERT, 2001; DEATON, 2004; CALEMAN; SPROESSER; ZYLBERSZTAJN, 2008).

In this context, the European Union has been intensifying actions to promote consumer guarantees (GILBERT, 2001; FRAYSSIGNES, 2005; SPADONI *et al.*, 2014; JOSEPH; MARMIER, 2018). Examples are "Parmigiano Reggiano" in Italy, "Jámon Serrano" in Spain and "Feta Chese" in Greece. These mechanisms are intended to ensure information on how a product was produced, transported and processed, generating traceability that links the chain, may involving a third party to certify such processes (GILBERT, 2001; MÉNARD; VALCESCHINI, 2005; HENSON; HUMPHREY, 2009).

Certification by a third party, therefore, could promote conveyance of information, and contributes to the increase of reliability with respect to the presence of the quality attributes. Thus, transactions comprising difficult-to-measure attributes and high levels of asset specificity may require less complex governance structures if supported on third-party certification (CALEMAN; SPROESSER; ZYLBERSZTAJN, 2008). That prevents vertical integration and avoids bureaucratic costs, besides reducing transaction and measurement costs (WILLIAMSON, 1985; BARZEL, 2005). In short, when it comes to assets with differentiation, the alignment between the organization of transactions and the control mechanism is essential (MÉNARD; VALCESCHINI, 2005).

Specifically on high-quality beef chain, the production requires investments that can result in dimensions that are difficult to measure, requiring adequate governance mechanisms (GUIMARÃES *et al.* 2021; SHANPYAN *et al.*, 2019). The literature shows failures in these subsystems, such as the balance between the specifications and the information access by the chain actors (FOURNIER, 2015; MARIE-VIVIEN *et al.*, 2015). Shanoyan *et al.* (2019) show a problem with information asymmetry in this chain, hiring incentives to producers to quality improvement in production. Guimarães *et al.* (2021) reveal that problems in quality remuneration related to information asymmetry can hinder these systems, whose innovation are necessary.

Specifically in France, the "Ayveron and Ségala Veal (ASV)" stands out as an initiative to deal with information and property rights guarantee. However, it is not clear how the value distribution occurs in this subsystem. According to what was presented, it is

important to conduct more studies on the role of governance mechanisms in value distribution along the chain. In that sense, from Transaction Cost Economics (TCE) and Measurement Cost Economics (MCE) theories, and hybrid forms literature, the objective of this study is to analyze the governance mechanisms among agents of specialty beef chain in the French region of Aveyron and Ségala, "Ayveron and Ségala Veal".

This article is organized into five parts. Besides this introduction, the second one presents literature review and it's based on TCE and MCE theories, including hybrid forms literature. The third part presents the methodological procedures. The fourth one shows results and discussion, involving governance mechanisms and the interaction between such mechanisms with a focus on governance and measurement. The fifth section comprises conclusions.

2. Literature Review

To study agri-food chains it is necessary to understand the institutional environment, which involves the rules of the game (GILBERT, 2001; WILLIAMSON, 2000). Following North (1990), such institutions consist of people-created constraints to manage economic, social and political interactions, in order to create order and reduce uncertainties. From this institutional apparatus, different governance structures can be adopted (WILLIAMSON, 2000, BARZEL, 2005).

According to TCE, the choice of the appropriate governance structure should be made through comparative analysis, considering its alignment with transaction characteristics, assuming that individuals are opportunists and rationally limited (WILLIAMSON, 1985). This theory makes two behavioral assumptions: individuals are opportunistic by nature and are rationally limited. In addition, it considers three transaction characteristics for choosing the appropriate governance structure: frequency, uncertainty and asset specificity.

Individuals are rationally limited as they have access to only pieces if information. Therefore, the cognitive ability of individuals to make optimal decisions is also limited. Opportunism is associated with agents seeking to gain personal advantage (WILLIAMSON, 1985). To address the greater complexity of information coding and the institutional environment, more complex governance structures are needed (WILLIAMSON, 1985; BARZEL, 2005; GEREFFI; FERNANDEZ-STARK, 2011). Williamson (1985) proposed the adoption of more complex governance structures as asset specificity rises. Gereffi and

Fernandez-Stark (2011) point that the information and codification complexity will require more complex governance mechanisms.

Considering the transaction's characteristics, frequency refers to the number of times a transaction happens, which can generate trust and reputation, enabling the use of less complex modes of governance (MÉNARD, 2004). Uncertainty can be environmental (related to conditions of adaptation of the parties to environmental contingencies and/or market swings) and behavioral (associated with opportunistic behavior) (WILLIAMSON, 1985). Asset specificity refers to the degree to which asset value is impaired in another use. Six types of asset specificity are considered: locational specificity; temporal; physical assets; human assets; dedicated assets; and brand (WILLIAMSON, 1991).

Regarding information asymmetry and transaction characteristics, as asset specificity increases, governance structures follow a continuum that goes from market mechanism to hierarchical organization (vertical integration), through intermediate or hybrid forms. Market governance is adequate when there is no asset specificity since there is no value to be lost. In such cases, the identification of the parties is not fundamental, as there is no bilateral dependence and no value to be lost (WILLIAMSON, 1985). Hybrid governance structures involve some asset specificity and consists in a variety of governance mechanisms in which transaction repetition is important: trust, contracts, long-term relationships, partnerships, and relational networks (MÉNARD, 2004; WILLIAMSON, 1985). Finally, vertical integration is adequate as transactions involve greater asset specificity.

Complementally, Barzel (2005) says that the choice of the governance structure depends on the assets measurement. Therefore, even under high asset specificity conditions, if dimensions are measurable, less complex governance structures can be adopted (BARZEL, 2005). According to MCE, an asset has several dimensions, which should have their property rights distributed. Since that distribution depends on the possibility of measuring these dimensions, MCE argues that even under high asset specificity - if there is a possibility of measurement, less complex governance structures could be efficient (BARZEL, 2005). Information is the key element in this theory.

The rationale of the theory is based on the efficiency of adopting governance structures that have a greater capacity to maximize transaction value, by protecting property rights over the dimensions involved in the transaction (ZYLBERSZTAJN, 2005). Barzel (2005) proposes four different governance mechanisms regarding the required information: caveat emptor and auctions; long-term relations; contractual relationships; and within-organization (vertical/horizontal integration).

Caveat emptor and auctions involve easy-to-measure dimensions associated with attributes, such as physical ones. Contractual relationships and long-term relationships involve a certain number of measurement difficulties and can be made during consumption, being subjective as a consequence, as for example sensory attributes. In such cases, trust and reputation are mechanisms that make it possible to conduct the transaction without vertically integrating. Finally, vertical integration involves information that could be important to third parties and is appropriate when measurement is difficult or costly to perform, even after consumption, being internalized within the firm, as may be the case with credence goods (BARZEL, 2005).

Physical attributes such as color, odor and size measurements are visible and easily measured and this can be done before the transaction itself. Assets chosen by consumers based on these attributes are classified by Figueiredo and Csillag (2010) as demand goods, requiring governance structures as caveat emptor or contractual relationships. Sensory attributes involve some measurement cost. To minimize these costs, measurement can be done after consumption, being subjective. Assets chosen based on these attributes can be called experience goods (FIGUEIREDO; CSILLAG, 2010), and require contracts or long-term relationships (BARZEL, 2005).

Finally, there are attributes that cannot be measured even after being consumed and are associated with the production process. These attributes are called credence attributes/goods (FIGUEIREDO; CSILLAG, 2010), e.g. gender, organic or fair trade. In this case, value chain agents need to observe the process to ensure the presence of these characteristics, since the product does not represent any of this information. Considering the complexity or high cost to measure and guarantee this information, Barzel (2005) affirms that the internal coordination (vertical integration) is necessary.

In addition to TCE and MCE discussions, hybrid form literature is being developed (JOHANSON; VAKKURI, 2017). Azevedo (2000) points that hybrid governance mechanisms are important to reduce transaction and measurement costs between farmers and buyers. To Williamson (1985), it is necessary to understand better the complexity of capitalism economical institutions through the study of intermediate organizational means. Ménard (2004) analyses multiple forms said ‘hybrid’ (clusters, network, franchises, alliances, cooperatives and other “strange forms”), in which there are long-lasting relations and are coordinated more efficiently than the market itself without necessarily having to adhere to vertical integration.

According to Ménard (2004), choosing hybrid forms involves both coordination and cooperation so decisions regarding investments can be jointly made. The author points out five characteristics of hybrid form contracts: the parties do not assume a bilateral relation but rather a multilateral one; contracts can be short or long-term but, in the first case, thay should be automatically renewable; contracts have detailed requisites; clauses can be adapted; and, finally, as contracts are incomplete, complementary safeguards can be implemented.

Trust between parties is being pointed out as an important element. Martino (2010) reiterates that trust as a dynamical factor for choosing governance structures can augment the range of contexts adopting hybrid structures. To Ménard (2004), the trust contributes to minimizing the opportunistic behavior as transactions happen more frequently. Thusly the parties start to develop trust in each other, reducing the possibility of opportunistic behavior (MÉNARD, 2004).

Studies on hybrid forms play such an important role in the agri-food industry (MÉNARD, 2018). In this domain, it is common to find different sizes of producers that adopt institutional organizations with alternative bilateral governances, or even multilateral, involving independent legal and economical interfaces (MÉNARD; KLEIN, 2004). Recent studies have been considering hybrid governance forms that involve efforts in quality with geographical appeal (OLIVEIRA; ZYLBERSZTAJN; SAES, 2019; LÓPEZ-BAYÓN; FERNÁNDEZ-BARCALA; GONZÁLEZ-DÍAZ, 2020).

Specifically when it comes to quality systems, third-party certification can help to conduct transactions through less complex governance structures, saving measurement and transaction costs (BARZEL, 2005). Labels and certifications are efficient mechanisms to transfer information along the chain to final consumers, bringing reliability in quality attributes and turning consumers more willing to pay for that (TANNER, 2000; GILBERT, 2001; DEATON, 2004; TRIENEKENS *et al*., 2012). Certifications are elements that enable the adoption of less complex governance structures, as the cost of measurement is transferred to a reputable third party (BARZEL, 2005).

Therefore, studying the dynamics of governance mechanisms and ways to reduce costs, can help chains that involve some type of differentiation to think about new strategies. As France is a reference in the evolution of formal contractual laws and the collective organization of products (MAZÉ; MENARD, 2010), especially in the beef chain (CHARDON; BRUGERE; ROSNER, 2015), it can serve as a parameter for other countries.

3. Methodological Procedures

Since the production of the ASV Veal differs from the commodity production (JOSEPH; MARMIER, 2018), we made a qualitative and descriptive research (DENZIN; LINCOLN, 1994) to understand in depth how the system works.

The choice of ASV Veal case was made based on information complexity involved that demands adequate governance mechanisms. Economically, was based on the representativeness of the region for this type of beef production, the territorial characteristics, and the agents' expertise (*savoir faire*) (VEAU-AVEYRON, 2021). It is a production that involves greater efforts when compared to the traditional chain (JOSEPH; MARMIER, 2018). Therefore, understanding how it is organized is fundamental to its survival.

For this purpose, secondary and primary data were collected. Secondary data were collected to understand the ASV case and were constituted by institutional materials and public documents available in electronic media, such as documents from the ASV website itself and the documents with the specific requirements for the certifications (ASV, *IGP*, *Label Rouge*).

To understand the governance mechanisms among agents of a specialty beef chain in the Aveyron and Ségala regions (France), primary data were collected through semi-structured interviews with producers who are part of ASV Veal. Following the criterion of accessibility, semi-structured interviews were conducted with 12 producers participating in three ASV chains in France. The main questions, which were elaborated based on literature are summarized in Chart 1.

Chart 1: Aveyron and Ségala Veal's analysis framework

Content analysis categories	Research question	Interview question
Transaction characteristics	How are attributes and governance structure configured in transactions between agents in the ASV Veal chain?	Who are the buyers of your ASV products? How long have you been working with? What were the investments needed to produce ASV Veal? If you no longer want to work under ASV, are these investments lost? Can you sell to someone else?
Measurement	What are and how are measured the dimensions of ASV Veal?	What are the characteristics controlled? Is the measurement easy, expensive? Is it necessary for these transactions? How do they improve the transaction conditions? How are bonuses and penalties calculated? Are there product characteristics that are not measured/controlled?

Governance mechanisms	How are governance mechanisms configured in the ASV Veal chain?	How are the agreements in this sector? How are prices set? What are the specifications made by IRVA? How are conformities to specifications checked? Do all parties respect their commitments?

Source: Elaborated by the authors based on Williamson (1985), Deaton (2004), Barzel (2005), Caleman, Sproesser e Ztlbersztajn (2008), Meulen (2011)

Additionally, were interviewed a director and a technician from ASV regional inter-professional organization (IRVA) and a representative from one of the retailing groups included in that system, for data triangulation. The interviews were recorded and transcribed for analysis.

Data analysis was performed using the content analysis technique (BARDIN, 1979) supported by the software Atlas.ti. The categories of analysis derived from the theoretical framework: transaction characteristics, measurement and governance mechanisms. After categorizing the data, they were grouped according to each category, analyzed and then the inferences were made.

Transaction characteristics were identified through asset specificity, frequency, and uncertainty. The asset specificity encompasses the identification of elements that make the traded asset specific to a transaction, generating losses in the case of a second-best transaction, such as investments in facilities, in the production system, in races, research and training, on properties, people, and in the brand. Frequency includes recurrence of transactions, frequency of payment, receipt, exchange, and renegotiations. Uncertainty dealt with the influence of variations in prices, sanitary conditions, and the behavior of agents in attempts to circumvent the rules, hide information about exchange and quality.

The category measurement and control were related to how the dimensions were measured at the time of the transaction and by whom. The dimensions involved in the transaction can include weight, animal/carcass, size, age, and breed. Finaly, the category governance mechanism aimed to identify how transactions occur between livestock farmers and buyers, including forms of simple market relations with quantity and price negotiation, informal and verbal agreements or formal agreements based on written documents.

4. Results and Discussion

4.1. Governance mechanisms in the region Aveyron and Ségala

Among main agri-food products from Aveyron and Ségala region (Figure 1) (wine, apple, nuts, lamb, beef), we find Aveyon and Ségala Veal (ASV). ASV is a high-quality meat associated with know-how (*savoir faire*), specifically produced in the region of Aveyron and Ségala, in France (Figure 1). This region involves a part of the department of Aveyron, specifically the region of Réquista, Najac, Conques, Rieupeyroux, Baraqueville and the Montbazens plateau and the Decazeville coal basin. Concerning to Ségala, it involves the department of Tarn, including the regions of Carmausin basin, the Alban mountains, Castres, Tarn et Garonne, Lot and the South of Cantal (VEAU-AVEYRON, 2019).

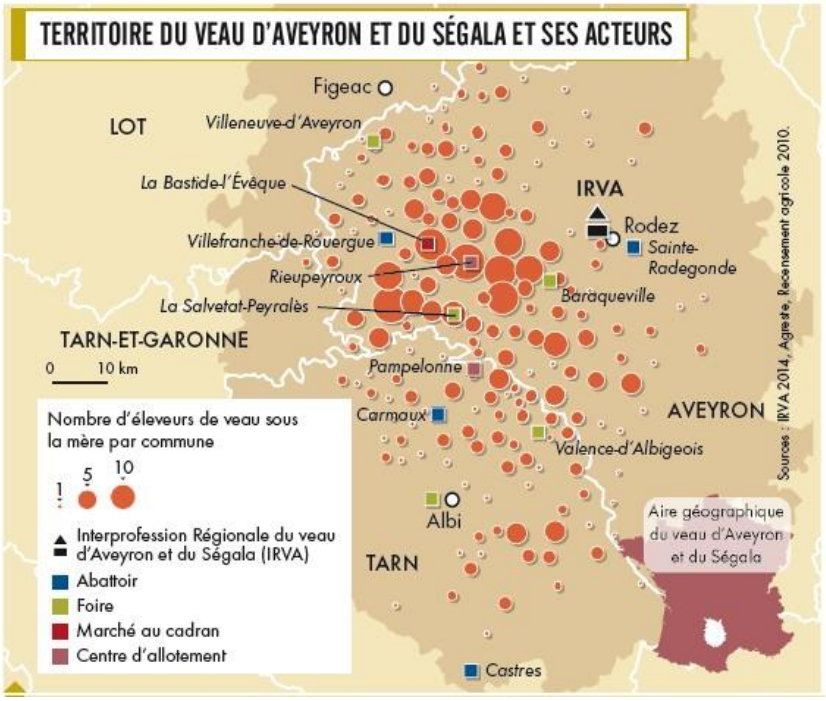

Figure 1 : Aveyron and Ségala Veal's region – France
Source: La Viande (2021)

The production particularly combines two official labels: *Label Rouge* (Red Label) and *Indication Géografique Protégée* (IGP) (Protected Geographical Indication). *Label Rouge* is a quality label, which certifies that a product has a superior set of characteristics in terms of production, manufacture, method of control or tagging, which may be associated with a territory. IGP is a label of legal protection that refers to the name of a region, a specific location, and may be a country, and indicates that a product was produced, or that has a part

of the production in that region. Obtaining a territorial seal is only possible through the possession of a quality label, such as the *Label Rouge* and the label of conformity. Such stamps are intended, in addition to attesting to the quality characteristics associated with a territory, to inform and make visible the information about that product (GILBERT, 2001).

In the case of ASV, calves, which reach a maximum age of 6 to 10 months and are mainly milk-fed, produce a meat with pink color and a superior flavor. More than 600 calf producers are engaged in that system, with herds ranging from 10 to 160 animals by farm. It indicates that this certification system is suitable for small farmers.

In the present case, organizations involved are the French National Institute of Appeals of Origin (INAO), *Qualisud* and *Regional Inter-professional organization "Veau d'Aveyron et du Ségala"* (IRVA). INAO is a public organization that set requirements for origin labels (IGP) and quality labels (*Label Rouge*), respectively. *Qualisud* is a private organization for certification, inspection and auditing, also responsible for traceability control; and IRVA, also a private party, holds the name *Veau d'Aveyron et du Ségala* and is responsible for managing and protecting this chain.

INAO is the one responsible for defining requirements and good practices guidelines (*cahier des charges*) for ASV production. Besides defining parameters for carcass characteristics (such as color and meat and fat aspects, odor, flavor and texture), they also set the other requirements concerning the geographical zone, feeding, and environmental and animal welfare aspects. Chain agents must fulfill all the requirements for both labels (IGP and *Label Rouge* (Chart 2).

Chart 2: INAO Requirements for *Label Rouge* and PGI fulfillment

Criteria	Description	Requirement
Label Rouge		
Raw Product		
Meat aspect	*Texture*	*Fine texture*
	Color	Pink
Fat aspect	Firmness	Firm fat
	Color	White
Cooked Product		
Odor	Grilled meat	Intense
	Balanced	Balanced
Texture	Tenderness	Tender meat
	Juiceness	Juicy meat
Flavor	Intensity	Intense flavor
	Persistence	Persistent flavor
Fat aspect	Firmness	Consistent fat

Protected Geographical Indication (PGI)
Geographic area
Animal feeding
Environmental rules

Source: Elaborated by the authors based on INAO (2018a, 2018b)

IRVA is accredited by INAO as an organization to manage and protect the name "*Veau d'Aveyron et du Ségala*". INAO is responsible for accrediting all actors along the chain: input suppliers, farmers, buyers, slaughterhouses, meatpackers, processors and retail stores. IRVA is responsible for managing, setting and controlling the adoption of ASV specific rules, from calf birth to final consumer market. This includes the delimitation of geographical areas of production, conditions of production, labeling, advice, promotion and defense of territorial labels.

The control of these labels may be delegated to a third-party organization approved by the official institutions. Such interaction between private (IRVA, Qualisud) and public (INAO) organizations favors the solutions for public mechanisms, posing contractual duties to parties and enabling the system to answer chain's and consumers' requirements (MEULEN, 2011).

4.2. Governance and Measurement

Despite the existence of many micro and small chains, ASV involves four main market chains, composed of producers, processors, and distributors (Figure 2).

Consistent with Williamson (1991), ASV system involves temporal, site, physical, human, dedicated and brand specificities. Asset specificity concerning breed is important since milk is the main food for calves and specific breeds produce milk of specific quality. At ASV system, required breeds are *Limousin* and *Blonde d'Aquitane*, two typical Southwestern French breeds. These breeds produce a large quantity of milk, and cows can feed their calves with more milk in a shorter period, favoring calves' fast growth. The faster calves grow, the earlier they will reach the required weight and the younger the calf, the tastier and more tender the meat.

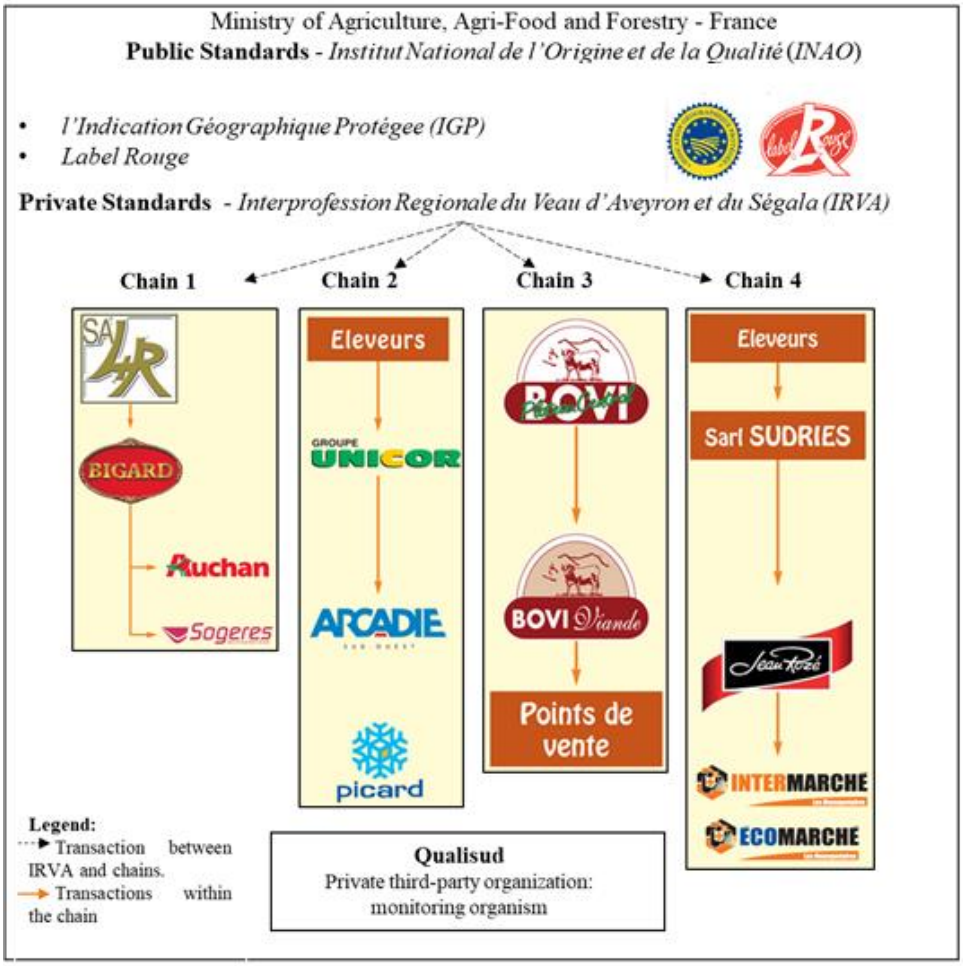

Figure 2: Aveyron and Ségala Veal's Organization
Source: Elaborated by the authors

We have noticed that the good performance on breed raising depends on climate and region in which the animal is grown, linked to site specificity. Moreover, temporal specificity is due to animal's precocity requirements. Calves older than 10 months lose part of their differentiation, representation a loss of value. Production system requires a specific know-how (*savoir faire*), linked to human asset specificity. It also requires some high-specific infrastructure (construction, installation, equipment) for breasting twice a day and for routine weighing, comprising specific physical assets. Finally, farmers must fulfill schedule and quality requirements associated with both labels, to maintain their value, linked to brand name specificity.

Regarding frequency of supply and payment, only one of the chains requires exclusivity. For the second chain, farmers need to deliver at least 85% of total production to the buyer. At the other chain, each farmer is free to decide the number of animals he/she is willing to deliver. We verified recurrent transactions, with a minimum price set by IRVA and

payment period to pay off ranging from 8 to 21 days (compared to 30 days in conventional chain), depending on the chain.

Despite the set of a minimum price, interviewees highlighted uncertainties regarding final prices. Although farmers are sure they will receive a premium over the basis price, the final price depends on final product characteristics. It is important to mention that not all the calves declared by farmers to be at the ASV system are certified: according to IRVA, from 28,000 animals declared on birth to be certified per year, only 19,400 fulfill all the requirements and receive the certification, thus reaching ASV price. Thus, we observed the existence of uncertainties regarding the amount to be received, because there is no accurate *ex ante* information about animal's final performance on quality attributes.

Once animals reach these requirements, farmers trust they will supply the ASV system and get a good price, those comprising main reasons for them to engage in the ASV system. For all studied cases, transactions are hybrid, comprising formal contracts in one of the chains. According to IRVA, after 25 years of ASV certification, spot markets (especially translated into local direct sales and bidding) have practically disappeared, even for small local chains. Transaction attributes are summarized in Chart 3.

Chart 3: Aveyron and Ségala Veal's Transaction Attributes

	SA4R-Bigard-Auchan-Sugeres	**Eleveurs-Unicor-Arcadie-Picard**	**Eleveurs-Sudries-Jean Rozé-Intermarché**
Asset Specificity	Physical asset specificity (breed), locational (region), temporal (precocity), dedicated (facilities), human (savoir faire), and brand (ASV).		
Frequency	Price defined once a year by IRVA; Payment: 8-10 days; Requires 100% of the production	Price defined once a year by IRVA; Payment: 14-15 days; Requires 75-100% of the production	Price defined once a year by IRVA; Payment: 21 days; No minimum requirement
Uncertainty	Market uncertainty due to the difficulty of measuring before slaughtering; Price and sale warranties	Market uncertainty due to the difficulty of measuring before slaughtering; Price and sale warranties	Market uncertainty due to the difficulty of measuring before slaughtering; Price warranty
Governance Structure	Formal agreement	Trust-based agreement	Informal agreement

Source: Elaborated by the authors based on collected data

Concerning dimensions, main attributes transacted are animal welfare; feeding system; geographical zone; environmental practices; breed; meat color and aspect; fat color and

aspect; odor; tenderness; juiciness, animal's age and weight. All attributes are set by INAO, yet they are measured by different private agencies.

Animal welfare, geographical zone and environmental practices are assessed by IRVA, through annual visits to audit farms. Feeding systems and breed are assessed by Qualisud through biannual visits at farms. Calves must receive cow milk as feed, being possible to complement with certain types of cereals allowed by INAO. Concerning breed, they need to be *Limousin* and/or *Blonde d'Aquitaine*, two typical Southwestern French breeds.

Qualisud also assess attributes such as meat color and aspect, fat color and aspect, odor, tenderness, juiciness, flavor, texture and taste, through tasting tests. To do so, Qualisud accomplishes two tests in which it invites two groups of tasters, only one of them experts on ASV. Qualisud offers people in both groups two types of meat, ASV and regular veal, and tasters assess the products. Raw meat is assessed for meat color and aspect, and for fat color and aspect. Prepared meat is assessed for odor, tenderness, juiciness, flavor and taste, and fat aspect (Chart 4).

Chart 4: Aveyron and Ségala Veal's Dimensions

Attributes	Parameter	Measurament Responsibility
Animal welfare	Facility and animal hygiene, shed lightning	IRVA
Geographical area	Aveyron and Ségala	IRVA
Environmental norms	Federal laws	IRVA
Feeding	Nontransgenic	Qualisud
	Milk/Permmited cereals	Qualisud
Breed	Limousine and Blonde d'Aquitane	Qualisud
Meat color	Pink	Qualisud
Meat aspect	Fine texture	Qualisud
Fat color	Intense white	Qualisud
Fat aspect	Consistent fat	Qualisud
Odor	Intense and balanced	Qualisud
Tenderness	Tender meat	Qualisud
Juiceness	Juicy meat	Qualisud
Flavor	Intense and persistent	Qualisud
Age	6 to 10 months	Farmer / Slaughterhouse
Weight	190 to 270 kg - male 170 to 250 kg - female	Farmer / Slaughterhouse

Source: Elaborated by the authors

Farmers need to sign a term of agreement with IRVA, declaring the consent to fulfill INAO's requirements. Despite the assessment methodology adopted, there are no objective

parameters for measuring organoleptic attributes (e.g. tenderness and flavor), since they are subjective and experienced during consumption.

Regarding age, animals must be between six and ten months-old, depending on the chain. Animals' weight differs according to the chain, ranging from 190 to 270 kilos for male calves, and from 170 to 250 kilos for females. To better control that important attribute, farmers follow up calves' weight along all production processes, weighting animals at the farm every 15 days. Slaughterhouses are responsible for assessing calves' age and weight. After slaughtering, farmers can access an internet report concerning carcass and slaughter (slaughtering time, weight, fat aspects, meat color, and conformity).

Payment limited to a maximum weight makes farmers to focus not only on weight gain, but also on other quality attributes, such as meat color, fat and tenderness. Thus, besides being a mechanism to incentivize quality, restrictions of maximum weight may reduce farmers' opportunistic behavior to reach higher weight, which is typical in commodity beef and veal chains.

ASV is considered a premium meat, thus comprising high-quality attributes. In consensus with the literature, to reach standards, higher investments are needed, when compared to commodity chains. The ASV system continuity demands value distribution along the chain and, consequently, appropriate rewards over efforts (TRIENEKENS, 2011, JOSEPH; MARMIER, 2018).

ASV production comprises high asset specificity, especially regarding breed, geographical area and feeding practices. Concerning measurement, despite the assessment methodology, a large number of difficult-to-measure dimensions turn transactions more complex, especially when we consider that many dimensions are related to experience (e.g. taste and juiciness) or credence attributes (e.g. animal welfare and environmental practices), or are observable only after slaughter (e.g. meat color, fat and weight).

Nevertheless, ASV does not comprise vertical integration. Governance structures adopted between IRVA and chain's agents were of hybrid forms, through a formal contract. Additionally, hybrid forms of governance were adopted between buyers and producers within each chain, ranging from trust-based governance and informal agreement to formal contracts.

The measurement costs were transmitted to the third-party certifier, who is responsible for measuring the attributes, including those difficult to measure, such as taste, juiciness, meat color, fat color, animal welfare and environmental practices. This indicates that hybrid governance mechanisms are important to reduce transaction and measurement costs between farmers and buyers, as pointed out in literature.

The adoption of these hybrid forms was made possible by the presence of three support structures: the INAO defining the quality and production parameters, the Qualisud guaranteeing information compliance, and the IRVA coordinating the chain to meet production requirements. It is the presence of these organizations that makes it possible to coordinate the chain while measuring and guaranteeing information and property rights on dimensions that are difficult to measure even in specific assets.

Besides that, considering high bureaucratic costs and low incentives, vertical integration may not be the most appropriate governance structure in that case. The role of control and coordinated adaptations is given to public and private organizations, as third parties responsible for setting the rules, applying, managing and controlling its fulfillment, and auditing, monitoring and measuring dimensions linked quality attributes. Following Gilbert (2001), institutions are necessary in that process, once complementing public ones, they will set the rule of the game.

5. Conclusions

We have concluded that the adoption of less complex governance structures, instead of vertical integration, became feasible through the joint action between three structures, one that defines the quality and production parameters (INAO), another one that certificates these parameters (Qualisud), and finally a key agent that coordinate the chain (IRVA). Value distribution was supported by the certification process since there was a reduction in transaction costs through the transfer of production process observation and dimensions measurements to a private organization. Vertical and horizontal coordination seems to favor supply chain's responsiveness to supply and demand gaps and oscillations.

Even if hybrid and certificated, the governance structures are different because of differences in requirements (minimum quantity, weight). This is due to the differences in the dependency levels between the agents of each chain. In chains with narrower coordination, downstream agents are more dependent on upstream supply. Therefore, ensuring the supply requires a more complex hybrid governance structure.

This study goes beyond, indicating the importance of coordinating the chain by key organisms to value distribution, such as IRVA. Once agents are under the same organization form, efforts for certification, such as training courses, are collective, dissipating total costs. Financial incentive, reflected into minimum prices and higher gains, is an important instrument for farmers' motivation. The way that they are organized acts also as incentives.

On the one hand, hybrid forms with certification enable the reduction of transaction and measurement costs. On the other hand, this more formal governance than market mechanisms provide security to producers as to the value to be received and guarantee of sale.

IRVA is the coordinating agent of the chains belonging to the ASV case. It is the performance of this coordinating agent and the transfer of measurement costs to a third-party organization that allow, as a consequence, the value creation and distribution among the links in the chain. In addition, although the label was created as a protection mechanism, it has been important for value creation; and coordination is important for value creation.

Given the importance of certification in France, this case can serve as a parameter for discussions in other countries, such as Brazil, where certification is still little disseminated and seen as high cost. The study contributes to the area of transaction costs and performance of supply chains showing that due to the support made by the organizations in measuring the attributes, the investments in complex systems that in principle have positive transaction costs, in the long term have the costs dissipated, contributing to value distribution and the perpetuity of these chain.

The findings presented here show that, although the adoption of certification may involve efforts and costs by the agents for its implementation and maintenance, it contributes to value distribution in the chain, which helps in its perpetuation. Therefore, in practice, it is recommended that the certification be analyzed by the agents, considering their long-term contribution and not just the initial investments. It is suggested the replication of this study in Brazil, which can provide contributions to Brazilian high quality agrifoods chains.

6. References

AZEVEDO, P. F. Nova Economia Institucional: referencial geral e aplicações para a agricultura. *Agricultura em São Paulo*, v. 47, n. 1, 2000.

BARDIN, L. *Análise de conteúdo.* Lisboa: Edições 70, 1979.

BARZEL, Y. Organizational forms and measurement costs. *Journal of Institutional and Theoretical Economics*, v. 161, p. 357-373, 2005.

CALEMAN, S. M. Q.; SPROESSER, R. L.; ZYLBERSZTAJN, D. Custos de mensuração e governança no agronegócio: um estudo de casos múltiplos no sistema agroindustrial da carne bovina. *Organizações Rurais & Agroindustriais*, v. 10, n. 3, p. 359-375, 2008.

CALEMAN, S. M. Q.; MONTEIRO, G. F. A.; HENDRIKSE, G. Sustainable food chains: the role of collective action and government incentives. *Organizações & Sociedade*, v. 24, n. 83, p. 618-632, 2017.

DEATON, B. J. A theoretical framework for examining the role of third-party certifiers. *Food Control*, v. 15, p. 615-619, 2004.

DENZIN, N. K.; LINCOLN, Y. S. *Handbook of Qualitative Research*. London: Sage, 1994.

FAO. *Developing sustainable food value chains*: guiding principles. Rome, 2014.

FIGUEIREDO, J. C.; CSILLAG, J. M. Construindo pontes conceituais entre atributos da qualidade em alimentos. *Revista Brasileira de Gestão de Negócios*, São Paulo, v. 12, n. 34, p. 100-112, jan./mar., 2010.

FOURNIER S. Evaluer *ex ante* l'impact d'une Indication Géographique? De la difficulté d'appréhender des processus d'action collective et d'innovation au sein de systèmes complexes. *Economies et Sociétés*, Série "Systèmes agroalimentaires", n. 37, p. 1167-1184, 2015.

FRAYSSINGES, J. *Les AOC dans le développement territorial. Une analyse en termes d'ancrage aplliquée aux cas français des filières fromagères*. 2005. Doctoral dissertation. Institut National Polytechnique de Toulouse, Toulouse, France, 2005.

GEREFFI, G.; FERNANDEZ-STARK, K. *Global value chain analysis:* a premier. Technical Report. Center on Globalization, Governance & Competitiveness, 2011.

GILBERT, L. Les signes officiels d'indification de la qualité et origine des produits agricoles *et a*limentaires. *Avis du Conseil Économique, Social et Environnemental*, 2001. Retrieved from https://www.lecese.fr/travaux-publies/qualite-et-origine-des-produits-agricoles-et-alimentaires. Acess on 28 ago. 2019.

GOY-CHAVENT, S. Rapport d'information fait au nom de la mission commune d'information sur la filière viande en France et en Europe: élevage, abattage et distribution. *Sénat nº781*. Enregistré à la présidence du Sénat le 17 juillet 2013. Retrieved from http://www.senat.fr/rap/r12-784-1/r12-784-11.pdf. Acess on 06 set. 2018.

GUIMARÃES, A. F. Estruturas de governança e inovação em sistemas agroalimentares diferenciados (SADs): um estudo na cadeia da carne bovina no Paraná. *Revista Alcance,* v. 28, n. 1, jan./abr., 2021.

HENSON, S., HUMPHREY, J. *The impacts of private food safety standards on the food chain and on public standard-setting processes*. Paper prepared for FAO/WHO, 2009.

INAO. *Contenu type du dossier d'evaluation et de suivi de la qualite superieure d'un produit label rouge*. Retrieved from http://www.inao.gouv.fr/Les-signes-officiels-de-la-qualite-et-de-l-origine-SIQO/Label-Rouge. Acess on 06 set. 2018a.

INAO. *Guide du demandeur AOP-IGP*. Retrieved from http://www.inao.gouv.fr/Les-signes-officiels-de-la-qualite-et-de-l-origine-SIQO/Indication-geographique-protegee. Acess on 06 set. 2018b.

JOHANSON, J. E.; VAKKURI, J. *Governing hybrid organisations:* exploring diversity of institutional life. Routledge, 2017.

JOSEPH, J.; MARMIER, D. Les signes officiels de qualité et d'origine des produits alimentaires (SIQO). *Avis du Conseil Économique, Social et Environnemental*. 2018. Retrieved from https://www.lecese.fr/sites/default/files/pdf/Avis/2018/2018_18_qualite_origine_produits_alimentaires.pdf. Acess on: 28 ago. 2019.

KALFAGIANNI, A. "Just food". The normative obligations of private agrifood governance. *Global Environmental Change,* v. 31, p. 174-186, 2015.

LA-VIANDE.FR. *Territoire du veu d'Aveyron et du Segala et ses acteurs.* Retrieved from: https://www.la-viande.fr/environnement-ethique/atlas-elevage-herbivore/role-social-culturel-patrimonial-filieres-herbivores/territoire-veau-aveyron-segala-acteurs. Access on: 09 nov. 2021.

LÓPEZ-BAYÓN, S.; FERNÁNDEZ-BARCALA, M.; GONZÁLEZ-DÍAZ, M. In search of agri-food quality for wine: Is it enough to join a geographical indication? *Agribusiness*, 2020.

MARIE-VIVIEN, D. *et al.* Are French geographical indications losing their soul? Analyzing recent developments in the governance of the link to the origin in France. *World Development*, v. 98, p. 25-34, 2017.

MALORGIO, G.; CAMANZI, L.; GRAZIA, C. Supply chain relationships and quality certification schemes: a case study in fisheries. *Politica Agricola Internazionale*, v. 1, p. 63-80, 2012.

MARTINO, G. Trust, contracting, and adaptation in agri-food hybrid structure. *International Journal on Food System Dynamics*, v. 4, p.305-317, 2010.

MAZÉ, A.; MÉNARD, C. Private ordering, collective action, and the self-enforcing range of contracts: the case of French livestock industry. *European Journal of Law and Economics*, v. 29, n. 1, p. 131-153, 2010.

MÉNARD, C. The economics of hybrid organizations. *Journal of Institutional and Theoretical Economics*, v. 160, n. 3, p. 345-376, 2004.

MÉNARD, C. Organization and governance in the agrifood sector: How can we capture their variety? *Agribusiness*, v. 34, n. 1, p. 142-160, 2018.

MÉNARD, C.; KLEIN, P. G. Organizational issues in the agrifood sector: toward a comparative approach. *American Journal of Agricultural Economics*, v. 86, n. 3, p. 750-762, 2004.

MÉNARD C.; VALCESCHINI, E. 2005. New institutions for governing the agri-food industry. *European Review of Agricultural Economics*, v. 32, n. 3, p. 421-440.

MEULEN, B. *Private food law*: governing food chains through contract law, self-regulation, private standards, audits and certification schemes. Wageningen Academic Publishers, 2011.

NORTH, D. Institutions. *The Journal of Economic Perspectives*, v. 5, n. 1, p. 97-112, 1991.

OLIVEIRA, G. M.; ZYLBERSZTAJN, D.; SAES, M. S. M. Can contracts substitute hierarchy? Evidence from high-quality coffee supply in Brazil. *British Food Journal*, v. 121, n. 3, p. 787-802, 2019.

SHANOYAN, A.; BANKUTI, S. M. S.; COLARES-SANTES, L. Analysis of incentive structures at producer–processor interface of beef supply chain in Brazil. *Journal of Agribusiness in Developing and Emerging Economies*, v. 9, n. 2, p. 159-174, 2019.

SPADONI, R. *et al.* Private food standard certification: analysis of the BRC standard in Italian agri-food. *British Food Journal*, v. 116, n. 1, p. 142-164, 2014.

TANNER, B. Independent assessment by third-party certification bodies. *Food Control*, v. 11, p. 415-417, 2000.

TRIENEKENS, J. H. Agricultural value chains in developing countries: a framework for analysis. *International Food and Agribusiness Management Review*, v. 14, n. 2, p. 51-82, 2011.

TRIENEKENS, J. H. *et al.* Transparency in complex dynamic food supply chains. *Advanced Engineering Informatics*, v. 26, p. 55-65, 2012.

VALCESCHINI E.; MAZÉ A. La politique de la qualité agro-alimentaire dans le contexte international, *Economie rurale*, v. 258, p. 30-41, 2000.

VEAU-AVEYRON. *Notre veau rosé*. Retrieved from http://www.veau-aveyron.fr/. Acess on: 09 nov. 2021.

WILLIAMSON, O. E. *The economic institutions of capitalism.* New York: Free Press, 1985.

WILLIAMSON, O. E. Comparative economic organization: the analysis of discrete structural alternatives. *Administrative Science Quarterly*, v. 36, n. 2, p. 269 – 296, 1991.

WILLIAMSON, O. E. The new institutional economics: taking stock, looking ahead. *Journal of Economic Literature*, v. 38, p. 595-613, 2000.