

Full Length Research Paper

Convention economics and coordination mechanisms in collective actions: The Uruguay certified beef case

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Consumers' interest for food quality and safety increases every day. The sanitary crises that have occurred in the beef cattle market have led to the need to guarantee traceability and the development of specialty brands (origin denominations, natural and organic meats, racial stamps, among others), in which trust in the process is the basic tool for competence. Therefore, this study aims to identify the forms of coordination configured by the agents of a beef cattle production chain in Uruguay that seeks to develop an assured quality plan to differentiate the meat produced with the objective of generating competitive advantages in the beef cattle market. Operationalization of the research was carried out through a case study with the application of in-depth interviews with the members of the chain. The results point out that the activities developed within a production chain can be characterized by several forms of coordination in their different stages and even in a same segment, at the same time quality conventions would allow us to explain the combination of these forms of coordination in an integrated form of governance.

Key words: Convention economics, coordination mechanisms, collective actions, beef cattle.

INTRODUCTION

The sanitary crises that have occurred in the beef cattle market have caused consumers to react in different ways. The most immediate reaction was to reduce the consumption of beef. The other reaction, which took longer to occur but had more lasting effects, was to demand higher safety and quality of the meats, as well as more information. These demands have led to the need to guarantee traceability and the development of specialty brands (origin denominations, natural and organic meats, race seals, among others), wherein the trust in the process is the basic tool for competence.

In this direction, the increment of the demand for food

safety and rigid regulatory control has forced the production chains to develop safe solutions for the global food system. Therefore, food safety administration systems are essential due to the fact that they are designated to control the potential risks of food safety associated with the product and also to guarantee the demands of safety legislations, retail standards and/or assured safety procedures.

Another dimension regarding quality guarantee is more focused on the competitiveness of the product than properly the health of the food source or the consumer. However, the health aspect is also considered, being treated within another dimension, the generation of competitive advantages. With the increase of the internationalization of production and consumption of food, concerns with food safety have provided the appearance of competitive advantages through trustworthy food safety systems

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(Spriggs and Isaac, 2001). The efficient food safety systems depend of the forms of coordination created for the agents.

Therefore, this study aims to identify the forms of coordination configured by the agents of the Uruguay beef cattle production chain, which seeks to develop an assured quality plan to differentiate their meat aiming to generate competitive advantages in the beef cattle market. More specifically, what is sought is the intensification of the discussions concerning social quality conventions established by the group of agents of a same production chain seeking to improve their competitive situation.

The option for the theoretical approach used in this study is based on the premises that studies developed concerning the competitive environment of the beef cattle production (Euclides, 2004; Zilbersztajn et al., 2003; Rocha et al., 2001; Neves et al., 2000) have predominantly used Transaction Cost Economics as theoretical model. This approach however does not offer sufficient elements to understand the problematic of coordination due to the fact that it has not eliminated or changed the hypothesis of methodological individualism. Among the widely heterodox research tendencies, Convention Economics seems to be the one that best understands the problems of organizational economics due to its sociological approach (Thevénot, 2001).

The article is divided in four parts. At first, we discuss Convention Economics. Later, the method used in the research is presented. Then, using an empirical research, we analyze how the agents have configured a social construction of the quality of bovine meat. At last, we concluded about the initiative's main challenges.

BIBLIOGRAPHICAL REVIEW

Convention economics

What notion of coordination is necessary to study the dynamics of organizations? Common sense brings the idea of a collective and stable order. Several types of restrictions exist for the maintenance of order: rules, hierarchical prescriptions, rational and bureaucratic methods, social structures, common cultures, etc. However, for Convention Economics the logic of coordination is more open to uncertainties, critical tensions and creative arrangements than with ideas of a reproductive and stable order. In this perspective, it becomes necessary to understand the several forms of coordination, pointing out their dynamics (Thevénot, 2001).

According to Thevénot, the universe of human actions is fundamentally complex and it is possible to make reference to several conceptions of a same product at all times. Coordination is based on categorical characterizations of human beings in terms of identity, interest

groups, habits, etc. In this sense, the results of the confrontation of these different social groups are complexity and conflict, which result in a variety of forms of coordination. Thus, the plurality of forms of coordination occurs through a set of references of a collective cognitive process that constitutes coordination mechanisms (Thevénot, 1989).

Evaluation principles, called "order of values", constitute different forms of coordination. This occurs because of qualification processes of people and things (Marescotti, 2000). Boltanski and Thevénot (1991) acknowledge the existence of a plurality of forms of evaluation that agents use to justify their positions. This plurality demonstrates that efficient coordination devices are composite and offer possibilities of commitment between different "orders of value" (Thevénot, 2001). Identifying different "orders of value" means to justify a particular course of actions or evaluate decisions. For Eymard-Duvernay (1995), justification is defined in situations when in order to mobilize others, an agent has to create justifiable arguments that refer to common principles. These common principles can be of several different orders, understood as conventions. Therefore, the specificity of products/services derives from the realization of the variety of coordination conventions between actors. Under this perspective, the nature of products (quality) is defined not only by the market and technologies, but also through conventions.

Conventions economics, as previously explained, identify the existence of six types of justifications that serve to coordinate actions (Boltanski and Thevénot, 1991): inspired, domestic, industrial, civic, market and opinion. Each of these forms of coordination, also called "order of the worlds", refer to different principles of evaluation in order to determine actions (Table 1).

For the conventionalist authors, market coordination is based exclusively on market and price relations. The agents are capable of evaluating the quality of the products exchanged in the moment of market transactions. They do not need added support to justify their actions besides price. The predominant order is coherence, the convention is mercantile and the objects to be qualified by the agents are products and services.

Concerning industrial coordination, coordination and exchanges are based on the respect of certain pre-established standards, in which quality exists if the characteristics of the products or services obey a set of defined rules and standards. In other words, agents judge quality by the definition and implementation of technical norms. In this case, there is predominance of the order of efficiency, based on control and certification by recognized entities. The convention is industrial. Domestic coordination is based on a personal and close relationship between agents, related to personal trust previously established in other transactions. The connections established are stable and longstanding. In other words, the agents know each other and negotiate

Table 1. Order of the worlds and their guiding principles.

Order of the worlds	Forms of evaluation	Information format	Qualified objects	Elementary relation	Human qualification	Time	Space
Market	Price	Monetary	Products/services	Exchange	Interested	Present, short term	Global
Industrial	Productivity	Measurable (statistics)	Investments, techniques, methods	Functional link	Professional, expert	Long term, planned future	Cartesian space
Domestic	Reputation	Oral, exemplar	Property, specific assets	Trust	Trustworthy	Habitual	Polar: anchored on proximity
Opinion	Fame	Semiotic	Media, brands	Recognition	Famous	Tendency	Visibility and communication
Civic	Collective interest	Formal	Regulations, rights	Solidarity	Representative	Stable	Homogeneous
Inspired	Innovation, creativity	Emotional	Emotions (artistic, religious)	Passion	Creative	Rupture	Presence

Source: adapted from Eymard-Duvernay et al. (2005, p. 9).

the qualities of the products among themselves. The convention is domestic, the order is trust and the objects to be qualified are specific assets. Opinion coordination, on the contrary of domestic coordination but similar to market coordination, is not based on a direct experience, on the repetition of transactions or on memory. The quality of a product is judged exclusively by the opinion of others and by the reputation of the operators. Agents take under consideration the reputation of more well known companies and products. The convention is of opinion and the order is the brand's fame. The objects to be qualified are brands and medias. Concerning civic coordination, the coordination and justification of the actions are based on the agents' adherence to a nucleus of collective principles, where agents renounce their own individuality and do not consider their own personal interests, aiming for the common good. In other words, agents deliberate about quality using civic interests as reference, such as the environment or the protection of a sector or region. In this form of coordination, the convention is civic, the order is collective and the objects to be qualified are rights. Inspired coordination occurs when the agents adhere to the emergence of innovative ideas to coordinate their actions and judge quality. The convention is inspiration and the order is innovation. The qualified objects in this form of coordination are emotions.

According to Wilkinson (1997), each of these worlds is organized around different types of qualification and is subject to equally different forms of justification. There is no hierarchy between the worlds, the interests are not permanent and are not connected to interest groups. The individuals move within and outside each world, where actions are qualified, justified and put to testing.

The existence of "bridge" qualifications, based on principles internally recognized in each world, opens way to a mutual justification of different worlds. The focus on justifiable forms of economic action gives priority to negotiations of deals between economic agents.

However, convention theory can also be used for the resolution of conflicts. As it can be noticed, each of these forms of coordination refers to different principles to determine the nature of the products (quality). The specificity of the product therefore derives from the realization of the conventions of coordination between actors. According to Thevénot (2001), the plurality of forms of coordination demonstrates that the efficient coordination mechanisms are composite and offer possibilities of commitment between different orders. Therefore, the possibility of an organization having coordination standards that correspond to the six worlds previously cited becomes visible. However, efficiency obtained through this complementarity is constantly threatened by tensions between the different worlds.

Convention economics and the agro-alimentary sector

Conventions economic (EC) has found a fertile field of operation coordination within the agro-alimentary sector. The crisis of the perfect competition model as an efficient coordination mechanism between agents has caused the application of convention theory in the agro-alimentary sector to gain strength for firm analysis and the analysis of coordination mechanisms between actors (Marescotti, 2000). For Allaire (1995), conventions theory has

adapted rapidly to the social demands of the agro-alimentary sector (production diversity, plurality of quality, heterogeneity of forms of work and valorization of the territory as an alternative model).

Convention studies in the agro-alimentary sector have been gaining space in the literature mainly due to the influence of the studies of the French National Institute of Agricultural Research (INRA). According to Wilkinson (1997), the works of INRA, especially those developed by Allaire and Boyer (1995) and Nicolas and Valceschini (1995), have contributed for the investigation of the importance of convention theory for the agro-alimentary sector.

According to Wilkinson's (1997) approach, INRA's work calls attention to aspects such as the importance of the notion of quality (in which markets can only function based on a previous definition of the quality of products negotiated, thus needing a qualification process of resources and organizations involved in their production); centrality and diversity of forms of coordination (in which it is possible to explain different forms of coordination inside the same competitive environment); and the focus in new standards of institutionalization (in which norms and deals, based on criteria of quality, can provide the local mapping of more global standards of an emerging institutionalization of the sector).

Therefore, the agro-alimentary research developed by INRA has particular relevance because it reinforces some crucial aspects of convention theory such as: the forms of coordination that involve specific qualification and justification processes (products with Appellation of Controlled Origin - ACO); the plurality of the forms of coordination (in the case of products with brands as well as products with ACO); and the need to correlate efficiency and variability (critic to the universalization of an economic form of coordination, in the case, the market (Wilkinson, 1997).

Despite the fact that Convention Economics focuses on the plurality of forms of coordination corresponding to six worlds of justified collective action, the theory reveals to be more relevant in the domestic worlds, as demonstrated by INRA's researches. The subjacent point suggests a narrow relation between the domestic world and quality economics (Wilkinson, 1999). This has become a strong point of reflection, predominated in the researches that involve conventions theory.

Under this perspective, several studies in the agro-alimentary sector have used convention economics as theoretical approach. Among several authors, one can mention Kirwan (2006), Noury et al. (2005), Freidberg (2003), Barham (2003), Reynolds (2003), Renard (2003), Marouseau (2002), Coutinho (1995), Sylvander and Biencourt (2000), Marescotti (2000), Lassaut and Sylvander (1997). These studies seek to establish a focus on the diversity of organizations, the plurality of forms of coordination and the diversity of quality references. The discussion concerning cooperation and the process of negotiation of specific product attributes, mainly in local

agro-alimentary systems, is the guideline for these studies.

MATERIALS AND METHODS

The present research is characterized as qualitative, given that it enables a better comprehension of the phenomenon analyzed (Malhotra, 2001), mainly due to the innovating aspect of the thematic approached, in which the matter of quality conventions is still relatively little explored in academy, specifically in what refers to the realization of empiric works.

The research can also be characterized as exploratory. According to Tripodi et al. (1997), exploratory studies aim to "provide a reference guide that can facilitate the process of deduction of pertinent questions in the investigation of a phenomenon". Through this exploration, it is possible for the researcher to formulate concepts and hypothesis to be further explored in posterior studies.

Among the types of qualitative research, one can emphasize the case study, which is characterized as a type of research with an object that is a unit to be deeply analyzed. The present research uses case study, a justifiable procedure given the research's exploratory character. According to Yin (1994), the option for case study as a research strategy can be justified when the study focuses on the ambit of decisions, or in other words, the study attempts to clarify the reason why decisions were made, how they were implemented and which results were found.

The case studied was the Uruguay Certified Natural Beef Program - PCNCU, a national program of meat production with high aggregated value, legitimated by a brand - Country, and that is located within the area (33 00 S, 56 00 W) that comprises the Pampa (Figure 1).

Data collection was carried out through in-depth interviews with the members of PCNCU, aiming to identify the forms of coordination practiced by agents to produce meat with attributes of quality. We sought to assure that these interviewees could also report clearly and objectively all activities since the creation of the productive arrangement.

From the elements of analysis established, a script of topics was elaborated, without obeying a formal structure (Lakatos and Marconi, 2001). Although it serves as a guide for the interview, this collection method enables the necessary liberty to develop each situation in the adequate direction, obtaining the necessary information for the solution of the problem initially proposed. 04 interviews were carried out with agents of the Program, as follows: 01 producer, 01 commercial director of a slaughterhouse industry, 01 representative of the certifier and 01 representative of the Uruguayan national meat institute (I. N. A. C). The interviews were carried out in Montevideo, Uruguay in July 20th, 2007 during the international seminar technological, Social and environmental challenges of the bovine meat chain for countries of the amplified mercosul. The average time of each interview was of 60 min.

Concerning the choice of the number of interviewees of this research, Minayo (2001) affirms that the criterion of sample representative in a qualitative research is not numeric, as is the case for quantitative research. This number must not be very big but should be sufficiently small so as to allow the researcher to be capable of understanding the study object well. Good sampling, therefore, what comprises the totality of the problem investigated in its multiple definitions. Thus, the interviewees selected in this research can be considered representative due to the fact that they present the same general characteristics of the population from which they were extracted, besides having been indicated by specialists as strategic for obtaining the necessary information for the comprehension of the totality of the cases studied, given that they have participated in the elaboration of the projects from the

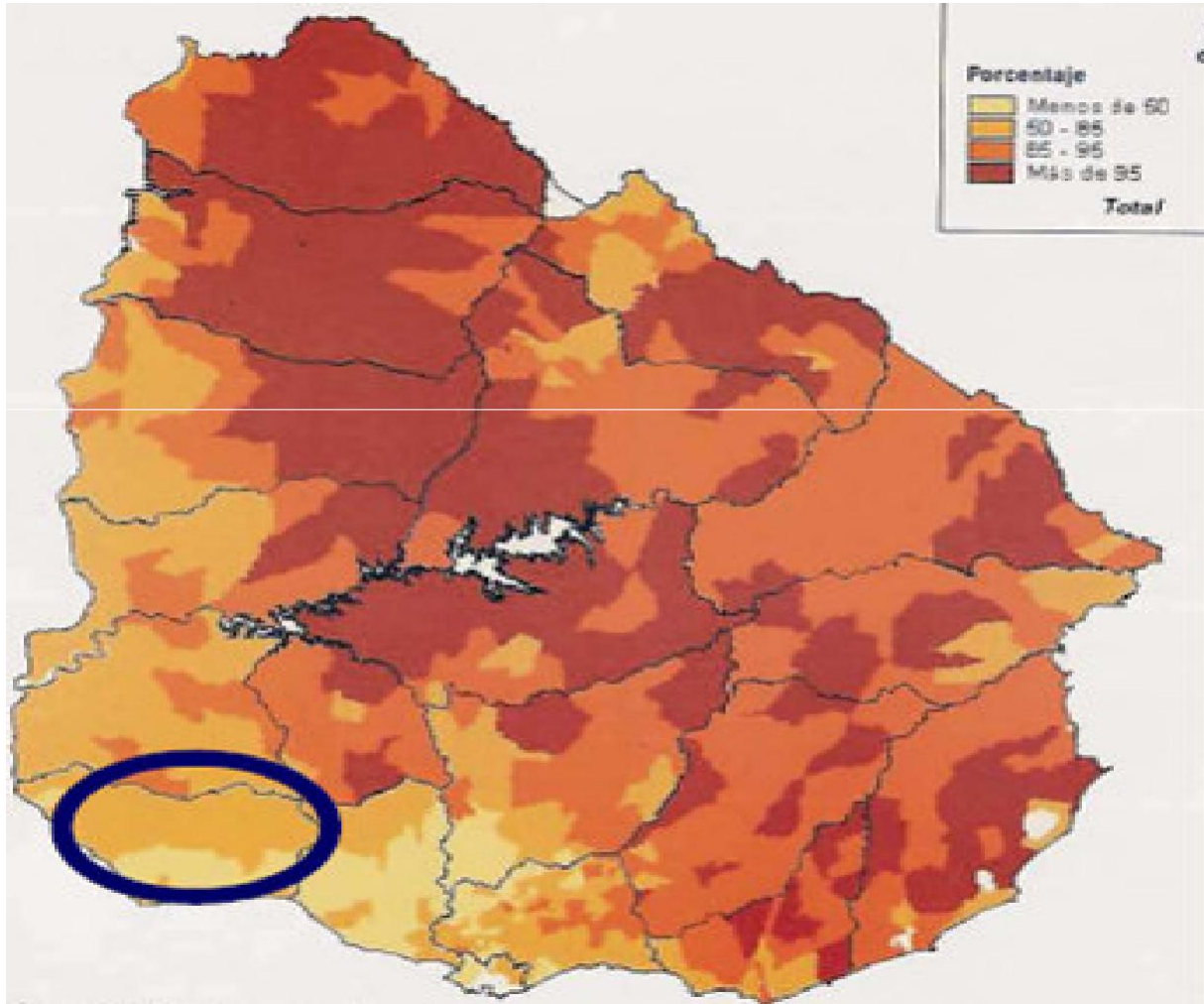


Figure 1. Demarcated area where the Program's beef cattle production is located. Source: INIA (2007).

beginning.

After the interviews were transcribed, the results were described and analyzed in their content, considering the elements previously defined for investigation.

Uruguay certified natural beef program case study

Brief contextualization of the certified natural beef program

Growing demands of international beef cattle markets concerning food safety, animal well-being and environmental sustainability has forced Uruguay to try to face the challenge of satisfying this demand through competitive advantages provided by its territorial strategic resources. For such reason the national meat institute (INAC) created the PCNCU in 2001. One of the interviewees reports that "the Program was created to increase consumers' confidence on Uruguayan products, differentiating them and aggregating value". The Certified Natural Beef Program is a program of quality guarantee of bovine and ovine meats, in which international certification organisms audit the conformation of a protocol that covers both the productive and industrial phases. The main areas covered by the protocol and that are considered in the

certification process are: food safety, traceability, animal well-being and environmental sustainability. "Due to the natural character of Uruguayan bovine and ovine meats, a "country brand" was developed to identify the product". The Program is integrated voluntarily by producers and slaughterhouses that wish to add value to the products they sell. The Program currently has 244 members, certified within an area of 550.000 ha and with 480.000 beef cattle herd.

Independent certifiers are responsible for auditing and certifying the Program's producers and slaughterhouses. This certification process includes field production to packing and classification of beef cuts. A "country brand" denominated Uruguay Natural Meat, intellectual property of INAC, is used and subject to approval of the certification organisms (Figure 2). INAC grants the use of the "brand - country" without costs if the demands specified in the protocol are correctly satisfied. In August, 2004, PCNCU was officially recognized by the United States Department of Agriculture (USDA) for satisfying the demands of the Process Verified program.

PCNCU reached the USDA requirements concerning product quality, animal management and origin verification. Therefore, PCNCU has become the first international program certified by the USDA process verified program (Figure 3).

This certification allows Uruguay to sell bovine meat to the United



Figure 2. Logo "country brand". Source: INAC (2007).



Figure 3. PCNCU and USDA Process Verified Program logos. Source: INAC (2007).

States with the USDA process verified seal and to make a detailed description of the product's characteristics, as for example: free of hormones and antibiotics, free of animal protein, traceability, etc. "This has been a really important stage in the differentiation of our meat in comparison to other countries that sell meat to the United States". Although the volume exported to the USA with this certification is still low – around 600 tons per year - the recognition is considered an important marketing tool for Uruguayan meat.

Soon Uruguay will be able to count with the homologation of the certified natural beef program through the EurepGAP norms imposed by Europe's largest supermarket networks, given that it began to work on obtaining the European Union (EU) facultative certification, which will allow the exportation of cuts directly to the public with the information required by the consumer. The EurepGAP standard is primarily designed to maintain consumer confidence in food quality and food safety. Other important goals are to minimize detrimental environmental impacts of farming operations, optimize the use of inputs and to ensure a responsible approach to worker health and safety. One interviewee said that "the European market is different than the American market because the American consumer truly believes in its authorities and the European consumer believes in private certifiers". EU has a system that requires a long process of certification to enable the possibility of putting all the information required by consumers on

the product's label. "If one wishes to put on the label that the meat is of a certain race, it can't be done without satisfying this process to demonstrate what is being put on the label".

Collective action organization: the INAC case

The Uruguayan national meat institute (INAC) is an organization created to assist the Executive Power. It is directed by a council composed of representatives of private sector of the industry and rural producers. INAC's mission is to promote activities and formulate strategies that add value to the beef chain, increasing the efficiency and competitiveness of production systems, industrialization, commercialization, storage and transportations. For such reason, it identifies high priority matters of research and development in the fields of technical services for the agro-industrial chain and the external and domestic markets. It is also in charge of promoting Uruguayan beef in the world and controlling the commercial quality of the products being exported. It maintains a permanent presence in international fairs and commercial exhibitions as a way to potentialize the products' sales. It has a commission that permanently studies potential markets and also promotes the use of the "natural beef - Uruguay" brand. INAC organizes and diffuses information concerning demands and commercial opportunities for

companies of the production chain.

INAC coordinates the Certified Natural Beef Program (PCNCU) at a national level. The Program rigorously follows a protocol of production and industrialization validated by independent certification organisms in order to maintain a high-quality product with sanitary guarantees and traceability from the origin, assuring a greater trust on products. PCNCU, under the coordination of INAC, certifies the whole beef production process, from the field to packing and labeling. The Program currently has 244 members, certifies within an area of 550.000 HA and with 480.000 cattle beef herd. Regarding rural producers, 92.8% of them are formed in networks (Carne Hereford del Uruguay; Consorcio de Productores de Carne del Litoral; Pulsa Al Este; FUCREA - Carne Crea; Vaquería del Este; Litoral Natural; Forrajes Naturales; Grupo Frigorífico Tacuarembó; Procarne) and the other part is composed of individual certified producers.

Regarding the predominant type of operation, approximately half the producers are dedicated to fattening and little less than the other half perform the complete cycle, while a small number are dedicated only to breeding. Investors are distributed mainly in the departments of Colonia and Soriano and those that develop the complete cycles are distributed in the departments of Tacuarembó and Florida. The certifying entities that work on the Program and are subcontracted by Certicarnes are the following: LSQA (Latu + Qualityaustria), SGS e Control Union Perú, SAC. There are eight certified industries: Frigorífico Canelones S.A.; Frigorífico La Caballada - Cledinor S.A.; Matadero Solís - Ersinal S.A.; Establecimientos Colonia S.A.; Frigorífico Tacuarembó; Frigorífico San Jacinto - Nirea S.A.; Frigorífico Matadero Pando - Ontilcor S.A.; PULSA S.A. In 2005, PCNCU negotiated the exportation of 613 tons. During 2006, it exported 610.55 tons of certified natural beef. In 2007, 136 tons have already been exported and the main destiny has been the US market

INAC does not interfere in the negotiations between agents. One representative of INAC affirms that "we leave them free; the market structure is what coordinates the program. The slaughterhouses and producers are free to plan their actions". Concerning the inclusion of new members, another interviewee affirms that "entering the program is voluntary. The only thing necessary is to comply with the protocol and there are no royalties for the natural beef seal. However, if the demands of the protocol are not met, the seal is removed". Concerning the distribution of exportation quotas for slaughterhouses, as for example the Hilton quota, INAC defines the division based on a criterion of the value exported by the slaughterhouse, being agreed among everyone. The process is transparent.

PCNCU quality conventions

Convention economics identifies the existence of six types of justification that serve to coordinate actions (Boltanski; Thévenot, 1991) : inspiration, domestic, industrial, civic, market and opinion. Each of these forms of coordination, also called "order of worlds" refers to different evaluation principles to determine actions.

Based on in-depth interviews with members of PCNCU, several forms of coordination practiced by agents were identified. The forms of coordination found were: civic, industrial, opinion, domestic, inspiration and market. Reports on how the conventions are materialized within the case study will be presented next.

Civic coordination

The growing demands of international cattle beef markets concerning attributes such as food safety, animal well-being and environmental sustainability have forced Uruguay to face the challenge of satisfying these demands through competitive

advantages provided by their Strategic Territorial Resources. This type of justification refers to the civic convention, in which the identity of a product is given in face of its impact on society or the environment. A collective agreement for well-being can be seen in this case (Boltanski and Thévenot, 1991). This was crucial to determine PCNCU's production system. As one of the interviewees affirms, "the relation between food safety and the mad cow issue in the international market was essential for us to determine how we would develop our production system. Interdisciplinary studies with several organs, led by INAC, were carried out in order to determine the feeding and breeding system". Another interviewee complements: "we opted to sell trust, creating the conditions for us to obtain a differentiated product that added value to the beef chain, consequently offering the safety guarantees that international consumers are demanding. At first the norms of the program were created and later a pilot plan to test them was implemented".

Therefore, the following animal production system was implemented: a) In relation to animal management, the animals should be bred without a roof during their permanence in the system, be it in breeding, growing or fattening stages; the animals should be managed according to correct standards, taking their well-being under consideration; obligatory free pastures during the whole time. One of the interviewees says: "bovine and ovine lots are in tune with the aspects that assure animal well-being in a friendly relation with the environment, guarding both flora and fauna biodiversity, aspects that characterize a sustainable production system". b) Environmental and sanitary management will prevent the occurrence of environmental contamination and dissemination of infectious infirmities; chemical products used should have a registration number; there must be an isolation area for sick animals; producers shall present the medicine purchase receipts; there must be a plan and registration of sanitary management. c) Regarding alimentary management, the animals should be fed with natural pasture without the use of food with animal origin or growth hormones. Animals should receive a diet of at least 60% of dry material originated from pastures.

Management during pasture gives animals the access to a wide range of species of pasture that assure a natural and adequate nutrition. One of the interviewees reports that "our meat is originated from animals fed exclusively with vegetable proteins, with absence of products or sub-products of animal origin. This is a determining factor for the inexistence of BSE (Bovine Spongiform Encephalopathy) in Uruguay. The beef production process is carried out without the use of hormones, steroids and growth promoters. These nutrition systems based on natural pastures determine a product with highly recommendable content of fat and cholesterol for a nutritious and healthy diet". d) Facilities, animal management and transportation should follow the recommendations for animal well-being and beef quality that aim to determine the causes of stress and to avoid injuries. Facilities, wire fences and pens should be adequate to offer safety and commodity for animal management.

The civic convention based on aspects related to food safety was one of the forms of coordination used in some cases found in the literature concerning quality conventions of bovine neat. As an example, one could cite "*Prodotti com Amore - Chianina beef*", "*Consorzio 52*" e "*Arezzo Qualità*" (Marescotti, 2000). In both cases, concerns regarding safe methods of animal nutrition, seeking to minimize the possibilities of contamination are highly emphasized as differentials of these programs.

Industrial coordination

In this type of coordination, activities are based on the respect to certain pre-determined standards in which quality exists if the product's or service's characteristics obey a set of defined standards and rules. In other words, the agents judge quality by

defined and implemented technical rules. In this case there is predominance of the order of efficiency, based on control and certification by entities with recognized aptitude (Boltanski and Thevénot, 1991).

Mechanisms used by PCNCU to certify the trust sold to the market are basically traceability, HACCP, USDA certification processes and also, soon, EurepGAP. "The difficulty of the commercialization channels in guaranteeing beef quality in what regards safety and production ethics is a concerning variable for the market. For this reason, it was necessary to implement a certification plan for the whole production chain. The PCNCU certifies the whole process, from rural properties to packing and labeling of the beef cuts", one of the interviewees reports. Traceability is done in group, being that after 2009 it will be carried out individually. Animal identification occurs individually with the use of earrings. The animals must be born, bred and slaughtered in Uruguay. The system must demonstrate the permanence of the animals for at least 90 days inside certified establishments. The service for animal identification and registration (SIRA) is the organism responsible for the operational plan of the traceability system. Traceability occurs from the cattle ranch to animal slaughtering and packing in the slaughterhouse. The animals slaughtered within the program must be separated from the rest of the slaughters, and their cuts must be controlled throughout the whole process. The use of hazard analysis and critical control points (HACCP), good production practices (GMP) and the sanitary standards for operational procedures program (SSOP) occurs mainly in the slaughterhouse industry.

The "USDA Process Verified" certification uses the International Organization for Standardization standards - ISO 9000 to verify if the quality management systems are compatible with the audit practices. The USDA Process Verified attests the seller's ability to guarantee the quality of products and/or services offered. According to one of the interviewees, "from the approval of the PCNCU by the USDA verified process it was necessary to comply with specific requisites to use the Uruguay certified natural beef - USDA Process verified logo". USDA solely authorizes CERTICARNES to certify products within the program. As one of the interviewee explains, "CERTICARNES subcontracts the certifying entities qualified by PCNCU to carry out verification tasks, being that the decision to certify is responsibility of CERTICARNES". Other interviewee complements that "the presence of internationally recognized certifying companies grants the destination country the guarantee of trust that the final consumer is demanding, due to the verification by certifiers concerning the firm accomplishment of the Certification Protocol". As mentioned before, PCNCU is litigating the EurepGAP certification for 2007, which contemplates good agricultural practices (GAP) and considers environmental, social and sanitary aspects, besides traceability. It can be noticed that PCNCU has strong characteristics of industrial coordination. This convention was also identified in several cases found in the bibliography, as for example, the Uruguay organic beef program, the Argentina natural beef program, the certified angus beef program, Hereford beef, among others. In these cases, a lot of attention is given to aspects of process certification, thus, attesting the quality of the products for consumers.

Opinion coordination

When the quality of a product is judged exclusively by the opinion of others and the reputation of operators, we have a domestic convention. Agents take under consideration the reputation of companies and more well-known products. The objects to be qualified are the brand and communications (Boltanski and Thevénot, 1991). PCNCU involves the existence of a country brand, with its content associated to the certainty it generated in the final consumer of the reliability of a product obtained according to a

rigorously certified process. As of the interviewees affirms, "Uruguay possesses a high global reputation in the production of quality bovine meat. Our products are synonymous of quality. The idea to create the country brand was to use this comparative advantage that Uruguay has in the market, which is the ability to offer the world a nutritious, healthy and safe product, with all the hygienic -sanitary guarantees available. Besides, international markets are more and more demanding in regard to food safety, animal well-being and environmental sustainability. In this context, Uruguay offers trust". The country brand is present in each of the labels of the several beef cuts, along with the company seal of certification with international recognition regarding the certification process.

In summary, as a result of the changes that have occurred in the most important bovine meat world markets, Uruguay has developed a brand, properly certified and traced from the origin, thus heeding the demands of these exigent markets. As it can be seen, the country brand is a type of opinion coordination, for it sustains the reputation and recognition the country has in the world bovine meat market. This type of coordination was found in other cases, as for example, New Zealand beef and lamb and Argentina Natural Beef (Fox et al., 2005).

Inspired coordination

PCNCU, within the logic of selling trust, has developed an important technological innovation that aims to contribute with the transparency of the relations between agents of the beef chain (from the point of view of the producer, the industry and the fiscal point of view) with traceability and company management. This innovation is called *Cajas negras* (black boxes). The *C. negras* are electronic tools that serve to contribute to assist in the control of bovine slaughters. Its main characteristics are: neutrality, transparency, homogeneity, accountability, novelty. As one of the interviewees affirms, "this innovation received this name due to the characteristics of inviolability of the information it possesses the *C. negras* capture information of animal weight in each stage of the slaughter process". The system works the following way: in each slaughterhouse there is a computer network that gathers data of weight in digital scales placed in each of the seven (7) stages of the slaughter process. The weight is then registered in a safe server and re- sent to INAC for supervision, storage and publication. Each plant is connected to INAC through a secret password, from where the slaughter data is sent and stored in a central site. INAC then publishes the information for the producers to consult. For the correct functioning of the system, the system itself (hardware and software) is necessary, a regulatory mark and the obligation of use. One of the interviewees affirms that "the system works while there is a regulatory mark that forces its use in every qualified slaughterhouse in the country and it guides its functioning through the establishment of protocols and norms to be followed".

Regarding the benefits of this technological innovation, one of the interviewees commented that "the time of availability of information was immediately improved, as well as the density of information and the direct access of producers and cosignatories. At medium term it will enable the basic infrastructure for traceability and will generate a databank for multiple potential utilities". As it can be noticed, the *C. negras* are important innovations inside the bovine meat chain, for they allow better information management, thus guaranteeing transparency in transactions between PCNCU agents. This innovation can bring benefits for the Local Agrifood Systems, providing organizational learning, increasing knowledge, generating other technological innovations and aggregating non-codeable values. Therefore, the presence of an inspired coordination can be inferred in the PCNCU. According to previously discussed matters, inspired coordination occurs when the agents adhere to the emergence of innovative ideas to coordinate their

actions and judge quality. The convention is inspirational and the order is innovation (Eymard-Duvernay et al., 2005).

Market coordination

Conventions theory suggests that price is the main management form of a chain if there is no uncertainty concerning the quality of what is being transacted. If this is the situation, price differences will be equated with quality. Conventions economy calls this characteristic market coordination (Boltanski and Thévenot, 1991).

The relations established between the agents of the case studied are characterized by market relations, without contractual relations or exclusivity in transactions. "Certified producers are free to negotiate the best price with any of the slaughterhouses certified by PCNCU. The slaughterhouses can commercialize beef with the certification seal or without the seal, but only certified slaughterhouses can use the seal. Economic sanctions are applied for who does not obey the demands of the protocol", one interviewee says. Another interviewee complements that "each member company of PCNCU is free to plan its business; the market structure coordinates the program, slaughterhouses and producers are free".

However, it is worth reminding that in the current situation, market relations are guaranteed by certification, or in other words, if the rules of the game are not obeyed, the certifier auditory will detect it and therefore, there will be economic sanctions. In a transaction in which the consumer knows the quality of what is being purchased, as can be considered the current case, market transactions become an appropriate form of coordination. Marescotti (2000) affirms that market coordination normally prevails when the buyer is local, habitual and well-informed. In other words, when he/she has great knowledge of the product and the conditions in which it is produced. The PCNCU Protocol specifications provide an easy way of obtaining information from the industry. The industry - market relation is also predominated by a market coordination, in which uncertainty concerning quality does not exist, given that the production possesses USDA certification and the USA are the main consumer market.

Domestic coordination

Domestic coordination is based on deals that exalt the importance of location, tradition and personal bonds in the construction of quality (Boltanski and Thévenot, 1991). In this sense, it is possible to consider the presence of a domestic coordination in the PCNCU. Such affirmative is sustained by the attributes used for its configuration, which are: botanic characterization of the fields, preservation of the natural environment and tradition in the production of bovine and ovine meat, which represent one of the country's most important economic activities for centuries. Trust, which is thoroughly emphasized in the PCNCU, also has a domestic aspect, due to the fact that it seeks to establish the creation of personal bonds with the external consumer, providing him/her an association with the history of the country. This becomes evident when one of the interviewees affirms that "due to the natural characteristic of Uruguayan bovine and ovine meat, a "country brand" was developed for the identification of the product". Under this perspective, Eymard-Duvernay (1995) sustains that coordination among individuals in the final market, within this logic, remits to the product's origin and the attempt to better establish a geographical-cultural relation with the consumer, mainly with non-local consumers.

It can also be noticed that despite the Program having only three (3) years of age, the relations established among agents has occurred for a long time. The fact that around 90% of the producers of PCNCU are organized in networks makes this feeling of collective action clear. The interviewees were unanimous when

affirming the existence of a relation of trust between them (producers - slaughterhouses - certifiers - INAC) and that the PCNCU certification mechanisms serve to reinforce this trust.

DISCUSSION AND CONCLUSION

As it can be noticed, each of these forms of coordination refers to different principles to determine the nature of the products (quality). The product's specificity derives therefore from the realization of the variety of forms of coordination of territorial strategic assets. According to Thévenot (2001), the plurality of forms of coordination demonstrates that efficient coordination mechanisms are composite and offer possibilities of commitment between different orders. In this sense, the possibility of a production chain possessing coordination standards correspondent to all the worlds cited previously becomes visible, generating an interconnection between the territorial strategic assets involved in each coordination mechanism. This provides efficiency obtained through complementarity.

PCNCU agents have chosen to establish a set of quality conventions, in which the commitment of the civic-industrial forms of coordination is emphasized, given that it deals with a specific product with natural attributes and at the same time has a rigid protocol of activities to be followed by the links involved. According to Sylvander and Biencourt (2000), the evolution of the agro-alimentary system and its regulations, especially regarding health and hygiene, tend to increasingly impose rigid control standards in the productive processes. At the same time a natural product arouses the interest of consumers due to its connection with the peculiar characteristics of a certain region, it also needs to follow standards and norms that attest its quality and origin. In the present case, the image imposed to the product refers to the guarantee of characteristics of beef quality (animals fed with pasture, without animal protein, animals free of hormones and antibiotics, practices of animal well-being) and simultaneously guarantees the characteristics of the productive process to consumers (with special attention given to certifications and traceability). Marescotti (2000) affirms that the combination of the civic-industrial forms of coordination strongly expresses the growth of importance of issue such as health and hygiene in the productive processes of bovine meat. This occurs due to recent sanitary scandals that have occurred in the sector. This combination of coordination was also found in some cases in the beef cattle literature, as for example *Arezzo Qualità* and *Prodotti con Amore* (Sylvander et al., 2006; Marescotti, 2000).

Another combination of forms of coordination found was opinion-domestic, given that a country brand was created to legitimize strategic territorial assets such as tradition, culture and trust, allowing the transformation of comparative advantages into competitive advantages.

This combination was important because it allowed the establishment of a connection between consumers and the production region, creating a relation of proximity and trust. This form of coordination was also found in the literature in the case New Zealand beef and lamb (Fox et al., 2005).

It can also be noticed that this form of coordination used by PCNCU establishes a strong interrelation with the civic -industrial coordination, given that it remits its strategic territorial assets to a rigid control of the productive processes, codifying the production systems as well as establishing a connection between the territorial assets and the production region through a country brand. As mentioned before by Ponte and Gibbon (2005), these four combinations are the most adequate for typical products of a region, given that it focuses on the construction of a relation of proximity between product, region and non-local consumer.

The last combination of forms of coordination found was inspired-market, due to the fact that the relations between agents occur via price, but within an environment of transparency. This transparent environment is provided by the efficiency of information management, which provides better knowledge of the information concerning quality, performance and price of the cattle and meat that is being negotiated within the system. Conventions theory suggests that price is the main management form of a system if there are no uncertainties regarding the quality of what is being transacted.

At last, the case analyzed in this study demonstrates that there are several compositions of forms of coordination present in the PCNCU. The possibility of finding composite forms of coordination is entirely coherent with the Conventions theory, because as Boltanski and Thévenot (1991) and Marescotti (2000) affirm, the coexistence of different models of quality agreements is normal for local products and for other agro-alimentary products with specific quality.

REFERENCES

- Allaire G, Boyer R (1995). *La grande transformation de l'agriculture: lectures conventionnalistes et regulationnistes*. Paris: INRA.
- Boltanski L, Thévenot L (1991). *De la justification: les économies de la grandeur*. Paris: Gallimard.
- Coutinho L, Ferraz J (1995). *Estudo da competitividade da industria brasileira*. 3. ed. Campinas: Unicamp.
- Euclides F, Kepler (2004). *Supply chain approach to sustainable beef production from a Brazilian perspective*. Amsterdam. *Livestock Prod. Sci.* 90: 53-61.
- Eymard-Duvernay F (1995). *La negociacion de la calidad*. In: Nicolas, F. *Agro-alimentaire: une économie de la qualité*. Montevideo: Economica.
- Eymard-Duvernay F, Olivier F, André O, Robert S, Laurent T (2005). *Pluralist integration in the economic and social sciences: the Economy of Conventions*. *Post-autistic economics review*. Paris. 34: 22-40.
- Fox JA, Perez L, Boland M (2005). *Grassfed certification: the case of the uruguayan beef industry*. Disponível em: <http://www.aic.ucdavis.edu>. Acesso em: 20 jun.
- INAC. Instituto Nacional de Carnes do Uruguai (2007). *Dados*. Disponível em: www.inac.gub.uy. Acesso em: 12 set. 2007.
- Kirwan James (2006). *The interpersonal world of direct marketing: examining conventions of quality at UK farmers' markets*. *New York, J. Rural Stud.* 22(3): 301-312.
- Lakatos EM, Marconi M (2001). *Metodologia do trabalho científico*. São Paulo: Atlas.
- Malhotra NK (2001). *Pesquisa de marketing: uma orientação aplicada*. 3. ed. Porto Alegre: Bookman.
- Marescotti A (2000). *Marketing channels, quality hallmarks and the theory of conventions*. In: Sylvander B, Barjolle D, Arfini F (Eds.). *The socio-economics of origin labelled products in agrofood supply chains: spatial, institutional and co-ordination aspects*. France: INRA pp. 103-122.
- Neves MF, Machado FCP, Carvalho DT, Thomé e CL (2000). *Redes agroalimentares e marketing da carne bovina em 2010*. In: CONGRESSO BRASILEIRO DAS RAÇAS ZEBUÍNAS, 4, 2000, Uberaba. *Anais. Uberaba: ABCZ* pp. 200-227.
- Noury J M, Fontguyon G, De Sans P (2005). *La construction collective de la qualité sur un territoire : l'exemple de l'appellation d'origine contrôlée «Maine-Anjou» en viande bovine*. *INRA, Productions Animales*, Paris 18(2): 111-118.
- Ponte S, Gibbon P (2005). *Quality standards, conventions and the governance of global value chains*. *London. Econ. Soc.* 34(1): 1-31.
- Rocha JCMC, Neves MF, Lobo RB (2001). *Vertical alliances: the case of beef chain in Brazil*. In: INTERNACIONAL CONFERENCE ON AGRI-FOOD CHAIN/NETWORKS ECONOMICS AND MANAGEMENT, 3., Ribeirão Preto. *Anais. Ribeirão Preto: FEA/USP*, 2001. 1 CD-ROM.
- Sylvander B, Biencourt O (2000). *La négociation des normes sur les produits animaux: Une approche procédurale sur le cas du lait cru*. In: INTERNATIONAL WORKSHOP: "MARKETS, RIGHTS AND EQUITY: RETHINKING FOOD AND AGRICULTURAL STANDARDS IN A SHRINKING WORLD", East Lansing. *Anais. East Lansing: IAMM*.
- Thévenot L (2001). *Organized complexity: conventions of coordination and the composition of economic arrangements*. *London. Euro. J. Soc. Theory* 4(4): 405-425.
- Yin R (1994). *Case study research: designs and methods*. 6th. ed. London: SAGE Publications,
- Wilkinson J (1997). *A new paradigm for economic analysis?* London. *Econ. Soc.* 26: 3.
- Wilkinson J (1999). *A contribuição da teoria francesa das convenções*. *Ensaio FEE, Porto Alegre* 20(2): 171-185.
- Spriggs J, Isaac G (2001). *Food Safety and International Competitiveness: The Case of Beef*. ISBN-13: 978-0851995182.