

# RECENT TRENDS IN THE ORGANIZATION OF BRAZILIAN AGRICULTURAL CHAINS

Maria Sylvia Macchione Saes\*  
Rodrigo Lanna Franco da Silveira\*\*

## 1. INTRODUCTION

As from the late 1980s, the Brazilian agricultural chains have experienced significant changes, particularly with the deregulation of the domestic market. The most substantial and comprehensive change occurred in the organization of agribusiness systems, with consequences, on the one hand, on the distribution mechanisms of inputs and, on the other hand, on the coordination mechanisms between agriculture and the processing and retail industry.

With regard to the industry of inputs, the market concentration, the internationalization of the companies and the development of technological packages integrated and associated with biotechnology led to the development of closer relationships between suppliers and their users. Intertwined in this process, the new role of resellers of inputs and the services added to the products sold emerges.

With regard to the processing segment, the growing denationalization and the concentration of the food industry have explicitly put an end to the logic devised in the beginning of the Brazilian industrialization regarding the division of roles between national and transnational companies. The consumer market for light goods with low technological capacity, in which the food industry was inserted, was overall restricted to national companies, while the market for durable goods, was restricted to multinationals (Evans, 1980). The end of restrictions on the entry of firms in this sector<sup>1</sup>, the great attractiveness of the Brazilian consumer market and the incorporation of sophisticated technology marked the entry of major foreign companies in the food processing market.

---

\* Professor in the School of Economics, Business Administration and Accounting of University of São Paulo – FEA/USP, Department of Business Administration, Coordinator of Centre for Organization Studies (CORS).

\*\* Professor at the Institute of Economics of the University of Campinas - UNICAMP. Email: [rodrigolanna@eco.unicamp.br](mailto:rodrigolanna@eco.unicamp.br). Member of Coordinator of Centre for Organization Studies (CORS).

<sup>1</sup> See, for example, in the case of the Brazilian industry of roasted and ground coffee, only with the end of the regulation of the sector in 1990, the entry of firms without State authorization was made possible. It is worth noting that, until 1978, the State prevented access of international companies to that market (SAES, 1997).

This entry determines a new competition pattern, while defining new forms of organization among the agents of the production chain.

Visible changes are also observed in the patterns of agricultural production financing, with an important role of the industry of inputs and buyers of commodities. In addition to reflecting more complex relationships between the production sectors, these new settings, by determining the rights of ownership of resources<sup>2</sup>, show how the distribution of income occurs in the value chain.

Given this current dynamics, this paper aims to discuss the evolution and recent trends in the organization of agricultural markets and its implications. The issue underlying this problem is to understand the relationship between business strategy and the organization of agricultural production chains, inserted in the institutional and competitive environments that emerged over these past few decades.

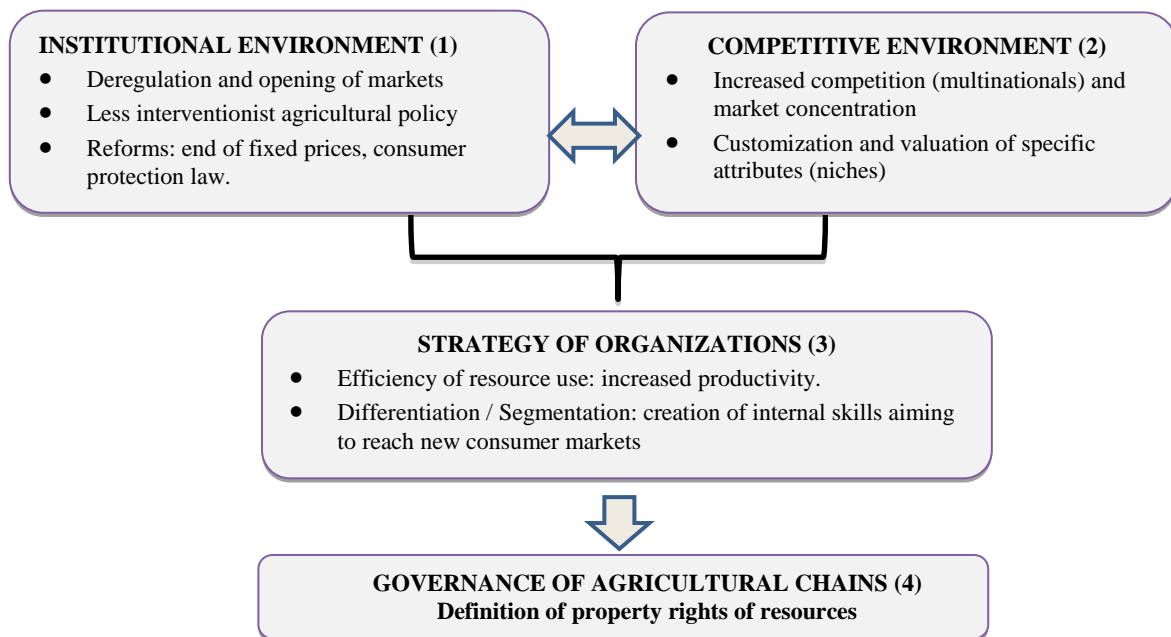
The study first begins with the theoretical framework that includes the discussion of the organization of Brazilian production chains, seeking to show the importance of the relationship between strategy and governance structure. For this, we make a brief contextualization of the Brazilian institutional and competitive environments, since business strategies do not occur out of nowhere: they are influenced (and influence) such environments. Then, we present some illustrative examples of the trends of the organizations in the chosen chains. Finally, we present our final considerations regarding these new trends of the organization in the agricultural chains.

## **2. THEORETICAL FRAMEWORK: STRATEGY AND GOVERNANCE**

The theoretical framework proposed to enlighten the discussion is based on the classical approach of the Industrial Organization combined with the Resource-Based Theory and the Transaction Cost Theory, as shown in Figure 1.

---

<sup>2</sup> According to Eggertsson (1990), there are three categories of property rights over a resource: for using (or consuming), for obtaining income or selling it. Barzel (1997) divides property rights into two categories: legal right (guaranteed by the State) and economic right (the ability of the agent to appropriate the income of resource attributes). This definition makes the costs to enforce such rights implicit, since it implies the exclusion of others from the income of the resource.



**Figure 1.** Theoretical framework on the new forms of organization of agricultural chains.

It is assumed that, by considering the Institutional and Competitive Environments, as shown in Table 1, analyzing the governance of agricultural chains requires an understanding of the logic of strategic business decisions, which is analytically divided between those aimed at achieving sustainable competitive advantages through the efficient use of resources (increased productivity and/or cost reduction, or cost advantages) and those that adopt market differentiation/segmentation (investment in resources with particular features) (Wernerfelt, 1984, Barney, 1991, Porter, 1980, 1985, 1998)<sup>3</sup>. It is worth noting that both strategies can be combined<sup>4</sup>, and can also be developed within the firm or through the establishment of relationships with other agents along the production chain.

<sup>3</sup> In the strategy literature, according to Porter (1985), who argues that firms obtain sustainable competitive advantages (CAs) by creating monopoly rents from differentiation, opposes the authors Barney (1991) and Wernerfelt (1984), who argue that companies acquire and maintain competitive advantages by identifying and developing internal resources, in a way that their competitors cannot imitate. The argument developed here is that the two theories can be integrated, since there is no valuable resource if there is no demand in the market for this product and there is no inelastic demand if there are no valuable resources. For example, the brand is a resource that belongs to the firm and a differentiation of a good/service that consumers value enables the firm to take advantage of monopoly gains (on this discussion, see Saes, 2009).

<sup>4</sup> Porter (1980, p.41) argues that the firm that tries to combine the two strategies – cost and differentiation are “stuck in the middle”. However, in the case of agricultural chains, it is observed that the strategy of differentiation, in order to be successful, has been combined with the strategy of productivity gains.

**Table 1 - Institutional and Competitive Environment in the late 1980s**

In the early 1980s, the national institutional environment was characterized mainly by the significant role of the government in the regulation of production chains and markets. A series of policies demonstrates this fact, such as: subsidized financing for the purchase of modern inputs; minimum price policy (aiming to guarantee a minimum income to producers, reduce price risk and indicate which products should have increase in the planted area to meet the supply of the domestic market); low exposure to the international market (import barriers); development of the national agroindustry and border regions; policy to combat inflation with price controls on retail, among others (SOUZA; SAES; NUNES, 1999). Thus, it is clear so far that there was a low interaction of society in consumer decisions.

The competitive environment, in turn, was marked by markets with competitive characteristics; quite homogeneous products; low investments; predominance of national companies (especially in the food industry, which was protected).

The governance between the inputs and agricultural segments was based on contractual purchase and sale agreements, including land ownership as collateral. This practice fulfilled the governance needs, given the attributes of tradable goods (seeds, fertilizers and pesticides). On the other hand, the governance between the agricultural and processing segments, the intermediate had the role of taking the products to buyers, through relational contracts.

As from the late 1980s and early 1990s, these environments experienced significant changes, and the private sector had to progressively take over roles that were performed by the State, comprising, as mentioned by Farina, Azevedo and Saes (1997, p. 195), “financing of agricultural production, production stabilization policies, guidance of technological research or the provision of information.”

#### **Main determinants of the institutional environment**

Within the agricultural production chains, handling the changes in the Brazilian institutional framework from the late 1980's makes reference to four important pillars of change in the government policy:

- i. **Deregulation of agricultural markets**, whose emblematic cases are the end of the Institute of Sugar and Alcohol (IAA) and the Brazilian Institute of Coffee (IBC), in March 1990;
- ii. **Reduced availability of official credit and reduction of subsidies**, particularly after the end of the Transaction Account (*Conta Movimento*) of Banco do Brasil, in 1986. With the end of the transaction account, the provision of funds from the Brazilian Central Bank to Banco do Brasil started being identified in the budgets of both institutions, eliminating the automatic entries. The funds from the National Treasury allocated to rural credit, which were 80% of the total rural credit granted by Banco do Brasil, in 1985, fell to 14% in 1990;
- iii. **Increased exposure to foreign markets**, marked by Resolution No. 155 of the National Foreign Trade Council (CONCEX), in 1988, which approved the measure aimed at the liberalization of the foreign market. Exports of rice, corn, soybeans and cotton were no longer subject to quantitative and qualitative restrictions, remaining, however, subject to a system of prior sales record;
- iv. **Deregulation of retail prices** with the extinction of the Interministerial Price Council (CIP), which had the duty to implement the regulatory price system.

#### **Main determinants of the competitive environment by segment**

Within the scope of agricultural production chains, addressing the changes in the Brazilian competitive environment from the late 1980s means to make a reference primarily to the concentration and denationalization of the companies, as shown by segment:

- i. Inputs:** in the industry of fertilizers, for example, Profeta and Braga (2011) point out that, from the 1990s, mergers and acquisitions of companies in this sector began to take place, in addition to the sale of state-owned enterprises to foreign groups, leading to a strong concentration of this market. Gonçalves and Lemos (2011) have noticed this same trend in the crop protection market, noting that, with the increased concentration, the technological base expands, the production process diversifies and market share rises<sup>5</sup>.
- ii. Rural producer:** the end of paternalism marks a new reality in the Brazilian field. The concentration occurs particularly in border areas and one of the results is the use of modern inputs and the increase in productivity. In the case of grains, productivity increased from 1,500 t/ha in the 1990s to more than 3,500 t/ha in the early 2010s (Conab, 2014). This requires new forms of financing and collaterals, as the State starts having a less important role in the funding of crops.
- iii. Processors:** from 1994 to 2013, the food, beverages and tobacco industry in Brazil reported the second highest volume of mergers and acquisitions in the Brazilian economy, amounting to 735, behind only the information technology sector, according to KPMG (2013) .
- iv. Retail:** since the 1990s, the sector has been contemplated by the massive introduction and maintenance of large international retail chains through the acquisition of domestic supermarkets. In 2012, in terms of turnover, the three largest companies (Grupo Pão de Açúcar/Casino; Carrefour and Walmart) controlled by foreign groups, accounted for 47.3% of the total turnover in the segment, compared to 18.4% reported in 1994 (Abras, 2013).

Therefore, it is worth noting that the wide range of configurations of governance structures in the real world, including within the same production chain<sup>6</sup>, is related to the strategy adopted by firms that composes them and the conditions determined by the institutional and competitive environments.

The logic of the organizational choice depends on the identification of the profile of resources to be used, given the strategy conceived by the entrepreneur. We emphasize here the relevance of the entrepreneur's role, that is, the decision-making agent, in the choice of value opportunities (Knight, 1964; Witt, 2000; Casson, 2005).

Once the resources to be used have been identified, the efficient organizational choice is the one that allows a better value appropriation. Thus, the discovery of opportunities by entrepreneurs involves two aspects: a) identifying strategies that create value; and b) govern the organization in order to allow that the creation of value be effective with respect to the appropriation of value. Thus, it is possible to infer that an efficient organization depends on the type of organizational solution required.

---

<sup>5</sup> According to the authors, the concentration in the pesticide market is the result of the strategies of the main groups of the industry, whose goals are "to reduce the risks and uncertainty in the pesticide market, as a breakthrough in biotechnology can derail a complete line of products in the industry or as an alternative to expand economies of scale and scope in R&D" (Gonçalves e Lemos, 2011, p. 2).

<sup>6</sup> The finding of different configurations in the same production chain gave rise to the concept "strictly coordinated production systems" by Zylbersztajn and Farina (1999), which shows the existence of different forms of coordination in one single system depending on the strategies of the firms.

Therefore, based on the notation of the Transaction Cost Theory, it is understood that production chains can be organized through impersonal relationships of markets and/or contractual relationships (formal or informal)<sup>7</sup> and/or based on the hierarchy (Williamson, 1985, 1991; Menard, 2004, 2012). These relationships determine the property rights of traded resources, and therefore, the ability of agents to appropriate value (Barzel, 1997).

Therefore, the way the chain is organized (or, in other words, the governance structure) aims, on the one hand, to allow the coordination, exploration and development of strategies for value creation (Foss and Foss, 2004) and on the other hand, to protect the value created from the threat of opportunism (value capture) from its suppliers and customers<sup>8</sup>. Klein, Crawford and Alchian (1978) and Williamson (1996) argue that the opportunistic behavior is favored in situations where there is a large amount of surplus to be divided *ex post*. The contractual counterparty may try to capture the quasi-rent revenue generated, especially if it has greater bargaining power, either through economic or informational reasons. Foss and Foss (2004 p.16)<sup>9</sup> argue that,

competitive advantage depends not only on controlling capture in the form of competitive imitation and substitution, but also on other kinds of capture such as moral hazard, adverse selection and hold-up. Estimating sustainability must take such capture and the costs of controlling it into account.

For the above reasons, the transaction cost is the variable that determines the relevant space of opportunities of creation, as well as appropriation. In addition, it is the governance structure that will define to whom the remaining income generated<sup>10</sup> belongs to (Kim and Mahoney, 2007). Therefore, it is possible to deduce that both the value creation and appropriation will be jointly determined, from the elaboration of a single strategy, to allow gains from the investment to be made.

---

<sup>7</sup> Menard (2004), also from the perspective of ECT, explains the hybrid forms of Williamson (1985) model, seeking to highlight the role of the relationships of trust, relational networks, leadership and formalized governance.

<sup>8</sup> It is noteworthy that in the dominant vision of Transaction Cost Economics, whose exponent is the Nobel Oliver Williamson (1985, 1991, 1996), the governance structure is justified to protect value.

<sup>9</sup> “Sustainability of competitive advantage depends not only on controlling capture in the form of competitive imitation and substitution, but also on other kinds of capture such as moral hazard, adverse selection and hold-up. Estimating sustainability must take such capture and the costs of controlling it into account”.

<sup>10</sup> Co-specialization leads to the impossibility of evaluating the marginal contribution of each party, so the governance structure to define property rights determines the appropriation of value.

In this sense, the governance structure is defined by the firm that creates the strategy, otherwise, there would be no interest in adopting it. Considering, therefore, the production chains, the connection of strategic solutions with the governance structures could be schematically designed using the concept of interdependence, originally developed by Thompson (1967), author of the Theory of Organizations<sup>11</sup>.

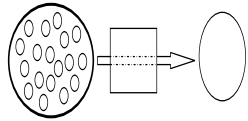
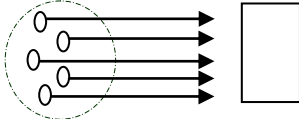
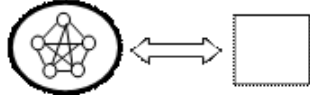
Thompson identifies three types of interdependence, as shown in Table 1: a) **pooled interdependence** wherein each individual in the group has a well-defined contribution for a given task. For example, the relationship between rural producers with suppliers of inputs; b) **sequential interdependence**, in which the tasks are structured sequentially, that is, an activity of the firm or an agent precedes another generating co-specialization. The co-specialty means that the resource creates value in combination with other resources. An example is the strategy of differentiation of the rural product combined with the processing company brand<sup>12</sup>; c) **reciprocal interdependence**, when it involves relationships between the parties and the input from an agent depends on the input from another agent and vice-versa. The relationship between rural producers of organic goods or from processing firm and origin is an example for this case. This interdependence affects the subsequent relationship, once it joins the sequential interdependence with the upstream and downstream segments of the chain. For being a relationship that produces synergies, the reciprocal interdependence allows the co-specialization.

---

<sup>11</sup> This concept was rescued by Lazzarini; Chaddad and Cook (2001) with the aim of introducing the concept of netchains. This concept refers to a collection of networks covering horizontal bonds between firms within a single industry, which are sequentially arranged based on vertical bonds.

<sup>12</sup> According to Teece (2009) the assets of a company are co-specialized when they are exceptionally valuable in combination, by allowing the synergistic combination of complementary assets. Such co-specialized assets are more valuable in combination than alone and bring competitive advantage for the firm that owns it. When co-specialization arises from a relationship between firms, the one that holds the residual property rights is the one that appropriates most of the value generated.

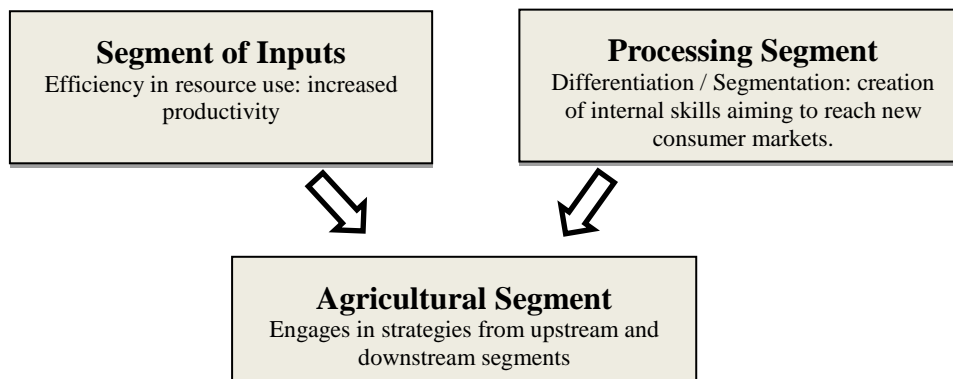
**Table 1.** Relationship between the governance of rural production and its segments according to the profile of resources

Profile of resource	Forms of interdependence	Dominant Governance Structure	Governance Instrument	Characteristics of the relationship	Examples
Acquisition / sale of commodities.	<p><b>Pooled interdependence</b></p> 	Short-term contracts between producers and upstream and downstream firms.	Market price	Each producer within a group has an autonomous and well-defined contribution for a given task. The relationships between the agents are sparse and the social bonds between them are weak.	<p>Relationship between rural producers with traders and suppliers of inputs.</p> <p>Relationship between farmer and meat-packing companies.</p>
Acquisition of specific quality and/or specific site products.	<p><b>Sequential interdependence</b></p> 	Different forms of long-term supply contracts (relational or formal) between producers and firms aiming to ensure the product brand and/or supply.	<b>Price</b> set by the firm (equal to or above the market price) and <b>authority</b> of the firm that has residual decision rights.	The strategy of producers is directly related to the specific investment of the downstream firm, which is responsible for determining the conditions of the organization of production aiming to protect the brand and/or ensure supply.	<p><u>Brand:</u> relationship between chicken/pork meat producers and the processing company.</p> <p><u>Guarantee of supply:</u> relationship between sugarcane/orange producers and the processing company.</p>
Acquisition of specific quality products requires collective actions among producers.	<p><b>Reciprocal interdependence combined with sequential interdependence</b></p> 	Horizontal relational contracts (trust) between producers and long-term contracts (relational or formal) with firms mediated by 3rd party (certification).	<b>Reliability</b> in the relationship between producers and <b>Price</b> set by the firm (equal to or above the market) and <b>Authority</b> granted by the certification.	Each producer is mutually dependent on the choices and the actions made by others. Decision rights are distributed among the rural producers, which involves a complex process of solution. In the relationship between producer and firm, the certification ensures the characteristic of supply.	Relationship between producers of organic goods and of origin/indication of origin and the processing company.

Source: Based on and adapted from Thompson (1967) and Lazzarini; Chaddad and Cook (2001).



Based on this theoretical framework, it is possible to understand the logic of the formatting of the governance structures in the agricultural production chains. As it is known, the agricultural sector is traditionally a receptor of strategies created in the upstream segments (incorporation of technology through agricultural inputs) and downstream segments (production of differentiated products), which would characterize it as a governance taker<sup>13</sup>.



**Figure 2.** Agricultural sector as a governance taker

Each type of resource required to develop the strategy of the segments to the agricultural segment is related to a form of interdependence that is associated with an organizational choice, as shown in Table 1. Thus, it can be seen in this same table a taxonomy of governance structures between rural producers and the downstream and upstream segments, according to the profile of the key resource required for the strategy. In cases in which the resource is a commodity, where the short-term relationships are guided by the market price, it is the governance structure that brings greater efficiency gains. When it is necessary to use differentiated resources and co-specialization, more complex structures, such as formal contracts, are required to protect the creation of value.

Based on this taxonomy, it is possible to analyze the trends in terms of the organization of the chains with the deregulation of the Brazilian market. As it is known, the most significant effect of deregulation was to provide autonomy for the production chains (and their firms) to define their strategies. Combined with this fact, the increased

<sup>13</sup> The agricultural sector is often mentioned in textbooks to illustrate the competitive market, characterized as price taker or a mere spectator of the market forces, without power to manipulate prices from its own offer.

competition of the markets caused by the internationalization of the sector has generated a trend to adopt product differentiation, implying the need for co-specialized investments between the segments – rural and processing. A very characteristic example of this process is the brand strategy of a specific quality by the processing company, which requires specific investment from the rural segment. Consequently, it is possible to come up with the following proposition:

**Proposition 1:** *The deregulation allowed agents to adopt strategies of differentiation, implying the need to adopt more complex governance structures.*

Another trend arises out of the competitive environment: the increased concentration in the processing segment generates competition among the companies in the search for inputs. According to characteristics of this input, such as perishability and instability of supply, and the degree of competition among firms in the relevant market, more complex governance structures are required. Paradoxically, the concentration of the processing segment leads to higher volumes of inputs and require more “tied” contracts. This argument leads to the second proposition:

**Proposition 2:** *The industrial concentration in the processing segment of the agricultural chain implies the need to obtain large volumes of inputs, as well as their collateral, leading to more complex organizational forms.*

These two propositions explain the increase of long-term contracts between the agricultural sector and the segments of inputs and processing firms. Below we present empirical examples to show evidence of this phenomenon.

### **3. NEW FORMS OF ORGANIZATIONS IN AGRICULTURAL CHAINS: EMPIRICAL EVIDENCE**

This section brings an analysis and presentation of the empirical evidence of the two propositions mentioned above. For the first proposition, we used examples of the coffee and cattle markets. As for the second proposition, we present evidence in the grain market.

#### **3.1. Strategies of differentiation in the coffee market: the case of Astro Café**

Between the 1950s and the early 1990s, the coffee market was regulated by the State through the Brazilian Institute of Coffee (IBC). Among the various measures established by this entity, on the one hand, it was possible to observe the existence of subsidies granted to processing companies for the purchase of green coffee in times of oversupply in the market, which stimulated the increase in the number of domestic companies and installed capacity. On the other hand, the retail price was fixed at a single level, thus preventing the establishment of any strategy of segmentation and product differentiation. As a result of these actions, the national coffee market, in the years preceding the beginning of the 1990s, was marked by strong competition, involving the prices between roasted and ground coffee companies, with strategies for lowering costs through quality deterioration, which led to a fall in consumption of the product in question (Saes and Spers, 2006).

The scenario described above experiences a significant change with the end of the IBC and consequent elimination of fixed prices in 1992, coupled with the incentive program for the production of quality coffee promoted by the Brazilian Coffee Industry Association (ABIC). In this new framework, strategies of differentiation started being adopted by the agents of this production chain, leading to the appearance of different product categories: selected sources/farm coffee, organic coffee, with certified quality and good agricultural practices, with Fair Trade<sup>14</sup> certificate. Consequently, the governance structures that govern the various operations between producers and processing companies gain complexity.

The company Astro Café is an example of this process. The company, founded in 1994 and operating in the specialty coffee segment since 2000, produces approximately 120,000 kg/month, with about 90% of grain exported and 10% allocated

---

<sup>14</sup> Fair Trade is a concept that aims at the establishment of direct contact between producer and buyer seeking greater transparency and fairness in trade relations.

for roasting. In the roasting segment, the company produces three types of specialty coffees: Bourbon, Blends and Organic, which respectively account for 45%, 40% and 15% of the company's revenue. By analyzing the transactions in each niche market, we note a distinct governance structure, which is associated to the need to ensure the supply of a specific type of raw material.

In the production of organic coffee, in order to achieve the regular supply of a high quality input and minimize production costs, the coffee is purchased from three registered and certified producers, using premium quality long-term contracts. The company contractually has the preference in the choice of the grains harvested by these farmers, and the product is stored and used in roasting throughout the year. The procurement of specific quality products implies relational contracts between producers and long-term contracts (relational or formal) with the company, mediated by a third party, the certifier. Thus, it characterizes a case of *reciprocal interdependence combined with sequential interdependence*, as shown in Table 1.

In the case of Bourbon, whose supply is quite limited (high asset specificity), the production is fully integrated, which leads to a greater control of the supply and removal of the relationship with suppliers. Finally, for the production of Blends, the company uses more than one governance structure (plural form)<sup>15</sup> to acquire the raw material with the same specificity, that is, procuring part of the raw material from third parties with long-term contracts, and the other part is integrated. In the latter case, the acquisition from third parties complements its own production, using long-term contracts in order to manage the risk of shortage of high quality beans, which characterizes a sequential interdependence relationship.

### **3.1. Strategies of differentiation in the cattle market: the case of Minerva S.A.**

Until the mid-2000s, the transactions between farmers and the meat-packing industry were mostly held on the spot market (*pooled interdependence*). Recently, new governance structures have been adopted to govern the transactions between the industry players (Caleman 2010; Carrer, Silveira, Vinholis, Silva Filho, 2013). An example of this evidence can be found in the analysis of the transactions of the company Minerva.

The above mentioned company acquires its primary input, cattle, via vertical integration (using its own farms) and mainly through the acquisition from third

---

<sup>15</sup> See Ménard (2013) on the concept of plural forms.

parties<sup>16</sup>. When it refers to untraced cattle, the acquisition occurs largely in the spot market (*pooled interdependence*). Already, in the case of traced cattle, which, in general, is allocated to the European Union (EU), it appears that approximately one third of acquisitions are made through short-term contracts and long-term partnerships (*pooled interdependence*). In this context, a partner of the meat-packing company has a significant importance in supply of the input. It confines the animals acquired from independent ranchers, performs fattening and provides to Minerva, with the price fixed before fattening with the use futures contracts. Thus, on the one hand, the meat packing company obtains the necessary input to meet markets that demand high quality meats and standardization, managing the price risk and supply shortages, especially during the offseason. On the other hand, for independent ranchers, there is an alternative to transact lean animals in the offseason (second half of the year), receiving the price of arroba and more than half of Europe premium.

The strategy of commercialization of the company in question aims at aligning the purchase of animals to the attributes that the different distribution channels value in this type of product. Thus, the definition of the customer portfolio to be served occurs simultaneously with the analysis of the possible animal supply channels that meet the requirements demanded. It can be observed, in this sense, a bi-causal relationship between the buying strategies of animals and the sale of beef (*sequential interdependence*). The adoption of different governance structures to govern these transactions allows a greater flexibility to the company in the necessary alignment between the actions highlighted<sup>17</sup>.

In addition to the aforementioned flexibility, the use of different governance structures is also associated with the financial strategy of the company. The company pays ranchers the price determined by the market. However, it often exerts greater bargaining power from a more comfortable position than competitors, as it pre-establishes a certain production scale, purchasing animals via futures contracts. Therefore, in order to increase profitability, they pay lower prices for the animals obtained in the spot market, taking advantage of the complementarity provided by futures and spot market contracts.

---

<sup>16</sup> Approximately 95% of the cattle are purchased from third parties and 5% of the cattle are from their own farms.

<sup>17</sup> The use of plural forms to ensure the supply of cattle ensures the flexibility required by the company to meet the different demands in the domestic and foreign markets. While the use of vertical integration can serve a specific niche that consumes high quality products in the domestic market, the partnership model ensures supply of traced animals that will serve as inputs to supply the European markets.

Thus, it is concluded that the adoption of more complex governance structures by Minerva reduces the informational asymmetry in its procurement transactions, ensures economies of scale and bargaining power for the company, and enables gains of flexibility for the supply of different distribution channels.

### **3.3. New financing models in the grain market**

Over the past few decades, important changes have been observed in the form of commercialization of production between rural producers and companies of inputs due to two main factors. The first is based on the gradual withdrawal of the State as a funder of agricultural activity, given the fiscal crisis of the State in the 1980s. Part of this role has been transferred to the private sector, promoting changes in the pattern of financing of national farming. In this scenario, new funding instruments for the activity have been developed<sup>18</sup> and negotiated. The second factor, in turn, includes increased competition and the concentration in the grain processing industry. According to Souza (2007), the commercialization of 80% of the national production of grains is concentrated in the following companies: ADM; Bunge, Cargill and Dreyfus (known in the market as “ABCD”). In these companies, various activities are held, including the processing and commercialization of grains.

Given these issues, a financing modality of production has been increasingly common especially in the grain market in the Central-West region of the country to fund soybean and offseason corn, called *barter*. It consists of a triangular operation between producer, the supplier of inputs and the trading (agribusiness or exporter) – as represented in Figure 3, in which the producer receives from the supplier/company the input (technological package) before planting, with a commitment to deliver, after the harvest, part of their production to a trading as payment. The latter agent, after selling the grain, makes the payment to the supplier of inputs.

---

<sup>18</sup> Examples of new financing instruments are the Rural Product Notes (CPR), Certificates of Rural Deposit (CDA), Agriculture Warrant (WA), Agribusiness Letters of Credit (LCA), Credit Rights Certificates of Agribusiness (CDCA), Certificates of Receivables of Agribusiness (CRA), among others. For more information about the characteristics of each of these instruments, see Souza and Bacha (2009).

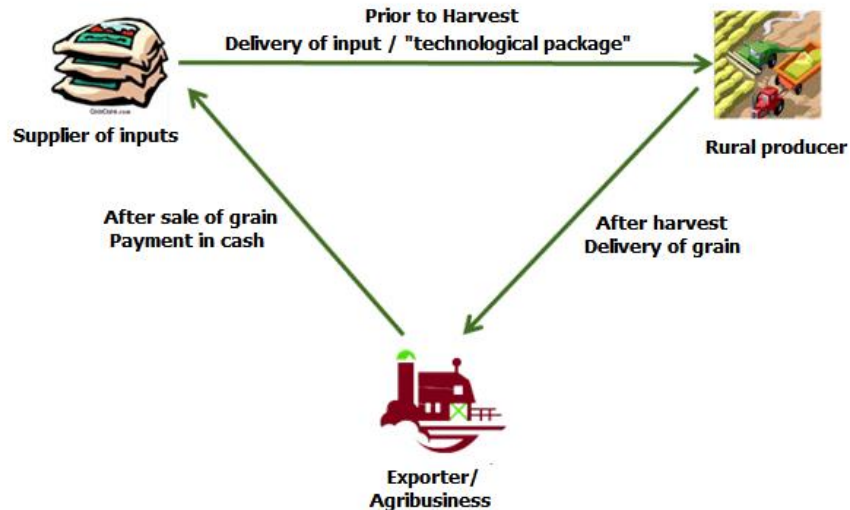


Figure 3. Exchange operation (*barter*)

Source: Silva (2012).

The mechanism described above illustrates a more complex organizational form, which requires coordination between the different agents of the chain. This coordination is configured in a *sequential interdependence*.

On the one hand, exchange operations allow the farmer to manage the risk of shortage of resources to fund the activity. As mentioned by Silva (2012, p. 69), “the producer receives the input and sells its production without the need for financial disbursement.” Oliveira and Santana (2012) point out a clear example of this process by analyzing a Local Productive Arrangement (APL) of grains in the state of Pará. According to the authors, a significant portion of the financing of producers is made by Cargill through barter operations and “green soybeans” contract. In the latter, trading companies anticipate the resources for funding the production to the farmer and the farmer delivers part of its production after the harvest. With this, producers in these localities reduce the financial risks in relation to the funding of production and have incentives to maintain the activity. Bertrand, Cadier and Gasques (2005) note that approximately 50% of the planted area of grains in Mato Grosso adopts this type of financing based on exchange (of inputs or anticipation of funds).

On the other hand, since some large companies operate simultaneously in this sector of inputs (especially in the area of fertilizers) and as buyers of grains – Table 2, this operation represents a form of appropriating margin on both sides of the production chain, in addition to being a way to increase market share (Silva, 2012).

Table 2 – The largest processors of soybeans in Brazil (in crushing capacity)

<b>Rank</b>	<b>Company</b>	<b>Operates in Fertilizers</b>	<b>Finances Producers</b>	<b>Crushing Capacity</b>
1	Bunge	Yes	Yes	29,020
2	Cargill	Yes	Yes	12,700
3	ADM	Yes	Yes	11,600
4	Coimbra	No	Yes	9,300
5	Imcopa	No	Yes	7,000
6	Granol	No	No	6,100
7	Coamo	Yes	Yes	5,710
8	Avipal	No	No	4,100
9	Bianchini	N/a	N/a	4,000
10	Caramuru	No	No	3,950

Source: Souza (2007, p. 63)

#### 4. FINAL CONSIDERATIONS

The purpose of this study was to discuss the new forms of organization of Brazilian agricultural markets. Throughout the study, it was possible to note that, by seeking to understand the logic of the relationship between business strategy and the organization of agricultural production chains, one should take into account the institutional and competitive environments that surround them, particularly with regard to the deregulation of Brazilian markets and the increased industrial concentration.

It was found, therefore, that the changes in both environments, which occurred over the past 20 years, have led to the adoption of more complex governance structures between the segments of the agricultural production chains, given the need to obtain supplies of raw material in the quantity and quality required by the strategies of the downstream segments of the agricultural sector.

The growing concern of consumers over food quality and the social and environmental sustainability is expressed in several possible ways of differentiation of rural production. In general, it was found that the higher the demand for differentiation of supply, the greater the complexity of the relationship or dependence between the agents (*sequential/reciprocal interdependence*), while the issue of food safety requires capacity of supply. Therefore, the profiles of resources that will be used to support the strategic decisions depend on the complexity of the problem to be solved, requiring different governance structures.

Extensions of this analysis may include studies that assess how the complexity of the relationships between the different agents of the chains are expressed in what is



called the plural forms of relationship, wherein obtaining the raw material occurs through different governance arrangements. In addition, this issue relates to the problem of how income is divided in these relationships, since differentiation leads to co-specialization, making it difficult to define the marginal contribution of each agent in the relationship. One of the solutions is to understand how these structures define the allocation of residual rights of control.

## 5. REFERENCES

Abras. Associação Brasileira de Supermercados. Ranking Abras, 2013. Disponível em <<http://www.abrasnet.com.br/clipping.php?area=20&clipping=35061>>. Acesso: 07 fev. de 2014.

Barney, J. Firm resources and sustained competitive advantage. **Journal of Management**, v. 17, n. 1, p. 99-120, 1991.

Barzel, Y. **Economic analysis of property rights**. 2a. Edition (reprint 2005). New York: Cambridge University Press, 1997.

Bertrand, J-P. Cadier, C.; Gasquès, J.C. O crédito: fator essencial à expansão da soja em Mato Grosso. **Cadernos de Ciência & Tecnologia**, Brasília, v. 22, n. 1, p. 109-123, 2005.

Caleman, S. M. Q. **Falhas de coordenação em sistemas agroindustriais complexos: uma aplicação na agroindústria da carne bovina**. 2010. 188 f. Tese (Doutorado em Administração) Universidade de São Paulo, São Paulo, 2010.

Carrer, M. J.; Silveira, R. L. F.; Vinholis, M. M. B.; Souza Filho, H. M. Fatores determinantes do uso de instrumentos de gestão de risco de preço por pecuaristas de corte do estado de São Paulo. **Ciência Rural** (UFSCar. Impresso), v.43, n.2, p.370-376, fev, 2013.

Casson, M. An entrepreneurial theory of the firm. In: Foss, Nicolai; Volker, Mahnke (Eds.). **Competence, governance, and entrepreneurship: advances in economic strategy research**. New York: Oxford University Press. 2005.

Conab. Companhia Nacional de Abastecimento. Produtividade Brasil. 2014. Disponível em: <[http://www.conab.gov.br/OlalaCMS/uploads/arquivos/14\\_01\\_13\\_08\\_54\\_33\\_brasilprodutoseriehist.xls](http://www.conab.gov.br/OlalaCMS/uploads/arquivos/14_01_13_08_54_33_brasilprodutoseriehist.xls)> Acesso: 06 fev. de 2014.

Eggertsson, T. **Economic Behavior and Institutions**. Cambridge: Cambridge University Press, 1990.

EVANS, P. **A Tríplice aliança: as multinacionais, as estatais e o capital nacional no desenvolvimento dependente brasileiro**. Rio de Janeiro: Zahar Editores, 1980. 292p.

Farina, E. M. M. Q.; Azevedo, P. F.; Saes, M. S. M.. **Competitividade: Mercado, Estado e Organizações**. São Paulo: Singular, 1997. 283 p.

Foss, K.; Foss, N. J. **The next step in the evolution of the RBV: integration with transaction cost economics**. Copenhagen Business School. Working Paper, March 2004.

Gonçalves, E.; Lemos, M. B. Padrão de inovação tecnológica na indústria de defensivos agrícolas brasileira. **Revista de Economia e Agronegócio**, v. 9, n. 1, p. 1-28, jan./abr. 2011.

Kim, J.; Mahoney, J. T. Appropriating economic rents from resources: an integrative property rights and resource-based approach. **International Journal of Strategic Change Management**, v. 4, n. 1/2, 2007.

Klein, B.; Crawford, R. G.; Alchian, A. A Vertical integration, appropriable rents, and the competitive contracting process. **The Journal of Law & Economics**, v. 21, n. 2, 1978.

Knight, F. H. **Risk, uncertainty and profit**. Reprint of Economic Classics. New York: Bookseller, 1964.

KPMG Corporate Finance. **Pesquisa de Fusões e Aquisições 2013** – Primeiro trimestre. Disponível em <[http://www.kpmg.com/BR/en/Estudos\\_Analises/artigosepublicacoes/Documents/Fusoes-Aquisicoes/FA-1trim-2013.pdf](http://www.kpmg.com/BR/en/Estudos_Analises/artigosepublicacoes/Documents/Fusoes-Aquisicoes/FA-1trim-2013.pdf)> Acesso: 15 dez. de 2013.

Lazzarini, S. G.; Chaddad, F. R., Cook, M. L. Integrating supply chain and network analysis: the study of netchains. **Journal of Chain and Network Science**, v. 1, n. 1, p. 13-22, 2001.

Ménard, C. The Economics of Hybrid Organizations. **Journal of Institutional and Theoretical Economics**, v. 160, n. 3, p. 345-376, 2004.

\_\_\_\_\_. **Hybrid Modes of Organization. Alliances, Joint Ventures, Networks, and Other ‘Strange’ Animals**. In R. Gibbons and J. Roberts, *The Handbook of Organizational Economics*, Princeton: Princeton University Press. Chapter 26: 1066-1108, 2012.

\_\_\_\_\_. Plural Forms of Organization: Where Do We Stand?. **Managerial and Decision Economics**. 34 (3-5): 124-139, 2013.

Oliveira, C. M.; Santana, A. C. A governança no Arranjo Produtivo de Grãos de Santarém e Belterra, estado do Pará: uma análise a partir do grão soja. **Revista de Economia Sociologia Rural**, Brasília, v. 50, n. 4, 2012.

Porter, M. E. **Competitive Strategy: Techniques for Analyzing Industries and Competitors**. New York: Free Press, 1980.

\_\_\_\_\_. **Competitive Advantage: creating and sustaining superior performance**, The Free Press, New York, 1985.

\_\_\_\_\_. Como as forças competitivas moldam a estratégia. In: C. MONTGOMERY, Cyntia; Porter, M. E (Eds). **Estratégia: a busca da vantagem competitiva**. Rio de Janeiro, Campus, p. 11-27, 1998.

Profeta, G. A.; Braga, M. J. Poder de mercado na indústria brasileira de fertilizantes NPK (04-14-08), no período de 1993-2006. **Revista de Economia e Sociologia Rural**, Brasília, v. 49, n. 4, 2011.

Saes, M. S. M.. **A racionalidade econômica da regulamentação no mercado brasileiro de café**. São Paulo: Annablume, Fundação de Apoio a Pesquisa do Estado de São Paulo - FAPESP, 1997.

\_\_\_\_\_. **Estratégias de diferenciação e apropriação da quase-renda na agricultura - a produção de pequena escala**. 1. ed. São Paulo: Annablume, 2009. v. 1. 192 p.

Saes, M. S.; Spers, E. E. Percepção do consumidor sobre os atributos de diferenciação no segmento rural: café no mercado interno. **Organizações Rurais & Agroindustriais**, v. 8, n. 3, p. 354-367, 2006.

Silva, F. P. **Financiamento da cadeia de grãos no Brasil**: o papel das tradings e fornecedores de insumos. 2012. 114 p. Dissertação (Mestrado em Desenvolvimento Econômico) – Universidade Estadual de Campinas, Campinas, 2012.

Souza, J. F. D. de. Integração vertical e financeirização: o caso da agroindústria processadora de grãos no Brasil. Dissertação de Mestrado. (Programa de Pós-Graduação em Engenharia da Produção) -. Universidade de São Paulo. São Paulo/SP, 2007.

Souza, W. R.; Bacha, C. J. C. A utilização dos novos instrumentos de crédito rural em estratégias de portfólios para diminuição do custo financeiro. In: 47º Congresso da Sociedade Brasileira de Economia e Sociologia Rural (Sober), Porto Alegre - RS, julho de 2009.

Souza, E. L. L.; Saes, M. S. M.; Nunes R. Mudanças institucionais e desempenho da produção de milho e soja. **Gestão & Produção**, v.6, n.3, p. 185-200, 1999.

Teece, D. J. **Dynamic Capabilities and Strategic Management**, Oxford: Oxford University Press, 2009.

Thompson, J. D. **Organizations in Action**. London, Editora Mac Graw Hill, 1967.

Zylbersztajn, D.; farina, E. M. M. Q. Strictly Coordinated Food-Systems: Exploring the Limits of the Coasian Firm. **International Food and Agribusiness Management Review**, v. 1, p. 249-265, 1999.

Wernerfelt, B. A Resource-based View of the Firm. **Strategic Management Journal**, v. 5, n. 2, p. 171-80, 1984.

Williamson, O. E. **The Economic Institutions of Capitalism: Firms, Markets, Relational Contracting**. New York: The Free Press, 1985.

\_\_\_\_\_. Comparative economic organization: the analysis of discrete structural alternatives. **Administrative Science Quarterly**, n. 36, p. 269-296, June, 1991.

\_\_\_\_\_. **The mechanisms of governance**. New York: Oxford University Press, 1996.

Witt, U. Changing cognitive frames – changing organizational forms: an entrepreneurial theory of organizational development. **Industrial and Corporate Change**, v. 9 n. 4, p. 733-755, 2000.