

VEBLEN'S INSTITUTIONAL APPROACH AND THE GOVERNANCE OF AGRIBUSINESS SYSTEMS: AN ANALYSIS OF MONSANTO'S INSTITUTIONAL ROLE IN THE BRAZILIAN MARKET OF GENETICALLY MODIFIED SEEDS

LUÍS OTÁVIO BAU MACEDO

Adjunct Professor, Departamento de Ciências Econômicas, Universidade Federal de Mato Grosso (UFMT), Campus Universitário: de Rondonópolis (CUR) - Bairro Sagrada Família - Rodovia: MT-270 KM: 06 - CEP: 78735-910 E-mail: luis_otavio@ufmt.br

FERNANDA CHAVES RODRIGUES

Programa de Pós-Graduação em Engenharia de Produção, Universidade Federal de São Carlos, Rodovia Washington Luís, Km 235, s/n - Jardim Guanabara, São Carlos - SP, 13565-905, E-mail: fernanda.chaves@dep.ufscar.br

JOSÉ VANDERSON FERREIRA DA SILVA

PIBIC Scholarship Student of Scientific Initiation, Departamento de Ciências Econômicas, Universidade Federal de Mato Grosso (UFMT), Campus Universitário: de Rondonópolis (CUR) - Bairro Sagrada Família - Rodovia: MT-270 KM: 06 - CEP: 78735-910, E-mail: vanderson.ferreira10@gmail.com

Abstract

The paper aims to investigate Thorstein Veblen's (1898) institutional theoretical developments to the analysis of agribusiness systems. A comparative assessment of the New Institutional Economics approaches was performed, including the macro-institutional (Douglas North) and the micro-institutional (Oliver Williamson) branches against to Veblen's evolutionary approach, originated from the "Old" Institutionalism. First it was found that a distinctive characteristic of Veblen's theory is based on the notion of a broad understanding of institutions that considers the mental habits as the core of institutional fabrics. In that regard organizations are institutions because they induce the evolvement of mental habits collectively. Second it is stressed out in Veblen's theory the endogenous relationship between individuals and institutions, called by Hodgson (2007) as "*reconstitutive downward causation*". That is distinctive from New Institutional Economics that follows the methodological individualism in which institutions are the result of individual choices. Veblen's theory argues that institutions are as much the result of individual choices as act over choices through the enforcement of mental habits. So there is a recursive relationship between individuals and institutions. Veblen's stressed out contributions: (i) a broad concept of institution, and (ii) institutional recursive relationships, both are of great value to the investigation of agribusiness systems. The article provides an assessment of Monsanto's role in the Brazilian market of genetically modified seeds (GM). In accordance to the performed assessment Monsanto may be considered as an institution in that market, because its performance enforces and establishes behaviors and practices among market players, like the examples of the scheme to collection of royalties fees at soybean trading facilities, and the role of Monsanto in the enactment of the Brazilian GMO property rights regime.

Key-Words: institutionalism, agribusiness systems, genetically modified seeds

VEBLÉN'S INSTITUTIONAL APPROACH AND THE GOVERNANCE OF AGRIBUSINESS SYSTEMS: AN ANALYSIS OF MONSATO'S INSTITUTIONAL ROLE IN THE BRAZILIAN MARKET OF GENETICALLY MODIFIED SEEDS

1. Introduction

The paper aims to apply the theoretical contributions of the “old” institutionalism, more specifically based on Veblen's approach, to empirical investigations related to the analysis of agribusiness systems. The theoretical underpinning is that relations among players in agribusiness systems are the result of formal and informal norms and rules that mold collective action. In this approach, agriculture production faces market trends that induce stronger coordination among players.

The need for agribusiness systems to apply to market requirements is related to a large range of points: new technological paradigms and consumer trends, demographic changes, new societal perceptions about social and environmental responsibilities, to mention just a few. Those points induce new relational arrangements among players within the diverse ties of agribusiness networks including input producers, farmers, processing industries, wholesalers and retailers related to domestic and foreign markets. (Saes and Silveira, 2014).

The conventional perspective of the governance of agribusiness systems is based on the study of transactions in supply chains. That approach applies the ideas of NIE - New Institutional Economics to the analysis of governance structures in agribusiness systems (Zylbersztajn and Farina, 1999; Zylbersztajn, 2005). The main trait of that theoretical approach is that minimizing transactions costs entails the choice of governance structures in a spectrum that lies within the firm, hybrid and market forms. The main premises are that individuals operate with bounded rationality in markets in which uncertainty and opportunism are pervasive. The firm in that approach is an institution that curtails transaction costs related to asset specificity, uncertainty and frequency by internalizing transactions under the fiat of its bureaucracy. The choice for vertical integration is the result of the efficacy of minimizing transaction costs (Williamson, 1985).

The functioning of agribusiness systems in nowadays however is distinctive from the several constitutive hypothesis of NIE. Governance arrangements are chosen as a consequence of firms' strategic choices that derive from a broader set of objectives than transaction costs. Arrangements like vertical integration, outsourcing, forward and futures contracting are examples of the coordinating role of leader firms (Zylbersztajn, 2005). As those arrangements are implemented, they tend to become routine practices followed by players in the agribusiness system, not as a result of rational deliberation, based on economic efficiency. Mainly they are due to the inductive role of leader firms in processing and distribution channels. It is observable that the relations among players in agribusiness systems, specifically between farmers, processing and trading companies are related to several asymmetries. As an essential characteristic, there is the trend of increasing industrial concentration in agriculture inputs, processing and distribution channels with fewer firms that have higher market shares (Guanziroli, Buainain, Souza Filho, 2008). So according to Williamson's cognitive map of contract (1985), there are several situations in which the monopoly approach overcomes efficiency.

Related to that point is the main contribution of “old” institutional analysis and specifically Veblen's. First the understanding of the concept of institutions to the author

regards them as “... *habits of thought common to the generality of men*” (Veblen, 1909, p. 626). Institutions are by that approach the result of an adaptive process of the evolvement of individuals’ choices. The processing model of Veblen takes the institutional path as endogenous, and in that sense, individuals’ choices are influenced by habits and routines (Hodgson, 2007).

Brazilian genetically modified (GM) seed agribusiness system provides an applied illustration of Veblen’s theoretical approach. First it is possible to assess the major role of Monsanto in the market of GM seeds during the last fifteen years. Monsanto in that time span has acquired several Brazilian seed companies¹ following a strategy of increasing its market share (Carvalho and Pessanha, 2001). That strategy had as complementary objectives to expand the revenues of its major brand product (Roundup) and at the same time to diversify and boost its portfolio of products applying biotechnologies to agriculture production. In the legal arena, that process was accompanied by the approval of bills by the Brazilian Congress that enabled the appropriation of economic rights from the development of genetically modified cultivars (Fuck and Bonacelli, 2008). As a consequence, there was a boost in court litigations especially by farmer organizations questioning the legislation of royalty payments.

In summary, the paper provides an assessment of the “old” institutional approach based on Veblen to the analysis of agribusiness systems by the use of Monsanto’s institutional role in the Brazilian GM seed market. The research made use of Monsanto’s case study to illustrate Veblen’s contributions to the understanding of organizations as institutions, and the endogenous process of the formation of individuals’ preferences. Both provide theoretical constructs that are of key importance for understanding the institutional change in agribusiness systems.

2. New Institutional Economics and the governance of transactions

New Institutional Economics has in Douglas North a major reference to the study of economic development in the long-run. North (1990) indicated in his scientific works that long-run economic growth is conditional on institutional evolvement and historical conditions (Rindfleisch and Heide, 1997). According to Williamson (1985), whose theoretical work is related to micro-institutions and the arrangements that govern transactions, the main purpose of the institutional approach is to shine light on the importance of governance arrangements to the functioning of markets.

In that sense, firms according to Théret (2003) do not operate isolated or are self-sufficient. But in fact, they tend to be integrated forming supply chains. The institutional approach provides the theoretical underpinnings for the understanding governance arrangements that are related to the economic performance of firms.

Transaction costs are of key theoretical and empirical importance to NIE; that concept was developed by Coase (1937) in his paper “The Nature of the firm”. In that work, Coase argues that transaction costs are the reason for the existence of firms, and following Commons (1931), transactions are the unities of analysis of the functioning of markets. Transaction costs are related to information, bargaining, and enforcement costs that individuals are entailed by opportunistic behavior and bounded rationality.

Opportunism according to Zylberstajn (1995) is a characteristic trace of non-cooperative games when information is not equally distributed among players. Hence,

¹ Agroceres, Agrooeste, Canavialis, Alellyx e Monsoy

players better informed have a monopolist gain over players that have not the same information available. Bounded rationality, also in accordance to Zylberstajn (1995), is related to individuals' limitations to process, store and search information when facing rational deliberations. In result of bounded rationality contracts tend to be incomplete, frictions among players need to be dealt in *ex-post* terms, and contractual safeguards must be envisioned *ex-ante* to rule over new relational conditions (Caleman and Zylbersztajn, 2013).

Williamson (1991) pointed out that transactions have three dimensions related to transaction costs: (i) asset specificity, (ii) uncertainty, and (iii) frequency. The model conceived by Williamson (1991) analyzes the governance structures, seen as the result of the search for gains through the choice of cost-minimizing factors, basically as a function of those transaction dimensions. To that extent, Williamson (1985) has summoned transaction arrangements in three structures: (a) price mechanism at spot markets, (b) hierarchy of the firm, and (c) hybrids, arrangements like alliances, joint ventures, franchises, among others, that are at the center of the spectrum from market to the firm. Makadok and Coff (2009) highlighted the importance to distinguish intermediary governance structures from hybrids. In accordance that those authors, intermediary governance structures have their dimensions (authority, incentives, and propriety) in levels between markets and firms, and hybrids, on the other hand, have simultaneously full-fledge market and hierarchy dimensions working simultaneously.

Transactions costs are related to the operation of the system of exchange in market economies (Milgrom and Roberts, 1992). They may be envisioned *ex-ante*, when contracts are negotiated, or *ex-post* when there are the monitoring and enforcement of its clauses. Under the *fiat* of the firm, some transactions may endure lesser transactions costs than in the market. However, greater bureaucratic costs are required. The greater the uncertainty and asset specificity, the greater the transaction costs, and that turns out feasible the choice to internalize production into the firm (Rindfleisch and Heide, 1997).

On the macro-institutional front, Douglas North analysis (1990) is centered on the importance of the institutional environment (institutional matrix) to economic performance. In accordance with his approach, the institutions are the formal rules (laws) and informal rules (customs and traditions), and organizations are groups of individuals united by the same goals. To that extent, North (1994) highlights the difference between the roles of institutions, understood as the rules of the social game, against organizations, that are social players formed by groups of individuals acting in accordance with economic incentives. Institutions in accordance to North (1990) can restrain uncertainty in economic and social interactions, and hence are envisioned to reduce transaction costs. Organizations, on the other hand, may work in favor of the institutional change in consequence of opportunities for economic gains. On North's perspective (1994), the institutional matrix provides the economic opportunities that induce the engagement of organizations. North (1991) proposed that long-run economic growth requires institutions to change over time in face to new market environments, to improve economic productivity and decrease transaction costs. Institutions in that regard shape the structure of incentives in society and can indicate behaviors that induce economic gain. North (1994) also stressed out that path-dependence may curb societal capacity to transform its institutions, and hence impeding society to benefit from new economic opportunities.

Hence in accordance to North (1990) market economies are systems that reward efficiency through the channel of market competition. Profitability in capitalism is related to minimizing costs, including production and transaction costs. Competitive markets provide

the clear measurement of efficiency to the allocation of production factors, and that is enhanced by the enforcement of propriety rights (North, 1990). Institutional change is pivotal to North's approach, and that is the result of the interaction between organizations and the institutional matrix. Exogenous changes in the business environment are captured by the cognitive capacity of individuals in a continuous learning process that alter their mental models (North, 2005). The endogenous and interactive process of transformation of individuals' mental models is channeled by organizations to the transformation of the institutional matrix, and hence to alter the formal and informal rules that govern the economic system. That process does not follow maximizing principals of rationality and is the consequence of collective learning that may result in stable beliefs that are self-enforced (NORTH, 2005)².

Hodgson (2006) highlighted that the theoretical approach of NIE is grounded on methodological individualism that provides a unidirectional causality relationship from individuals to institutions. That understanding relies on the assumption that individuals' mental models are not endogenously influenced by institutions. Market economies provide strong incentives to changes of the institutional matrix in accordance to economic incentives. Organizations have the role of grouping together individuals' efforts to changing the institutional matrix, and so forth, organizations are related to the process of institutional change. The causal relationship has the initiative of individuals to organizations and institutions.

According to Farina, Azevedo and Saes (1997), the macro-institutional (North) and micro-institutional (Williamson) levels of theoretical analysis are interdependent, and both underpin NIE. In accordance to Williamson (1993), governance structures are the result of both the institutional environment and individuals' choices. In a recursive way, Williamson also proposed that organizations can influence on the institutional matrix through their strategic and instrumental actions. Strategic actions are related to organizations' efforts to influence decision makers at the macro-institutional level; on the other hand, instrumental actions are the result of parties in a contract to demand changes in the clauses that arbitrage their relationship (Farina, Azevedo and Saes, 1997).

However, the causal relationship originated from the enforcement of the institutional matrix that molds individual's mental models is not stressed out by Williamson's model (1993). Farina, Azevedo and Saes (1997) argued that this is the result of NIE's theoretical understanding that individual preferences are exogenously determined from the institutional matrix. Hence, Williamson's heuristic model (1985) starts from the point of view that the causal relationship initiates from individuals to governance structures, and not vice versa. To that extent, in Williamson's model individuals face transaction costs by grouping themselves in organizations that aim at governing collective action by the use of rules and norms of behavior. In firms that take the form of corporative routines that mold individuals' behavior in accordance with internal culture. Firms are governance structures that aim to minimize transaction and operational costs by grouping individuals under the umbrella of the organizational hierarchy. Markets, on the other hand, are seen as a "natural" state of social interaction not subjected to the influence of previous institutions, in the words of Williamson "*in the beginning there were markets*" (1975, p. 20; 1985, p. 143). Douglas North (2005),

² Institutional literature tends to differentiate the concept of rules from norms, rules are the result of the fiat power of authority control that establishes sanctions to deviated behaviours, norms are, on the other hand, the consequence of collective perceptions about desired behaviours. Hence norms have the enforcement provided by the possibility of loss of reputation, and not by the enforcement of a hierarchical authority (HODGSON, 2006).

however, has departed especially in his late works from that approach, stressing out path-dependence and possible sub-optimality of institutional outcomes.

In summary, NIE provides a theoretical framework that explains organizational dynamics based on the choice of governance structures that minimize transaction costs. In that approach individuals' preferences are not determined by the institutional matrix, there is not what Hodgson (2006) calls "*reconstitutive downward causation*", that is, the mental models of individuals are not molded endogenously by institutions. In that regard, Veblen's theoretical constructs have important contributions that will be discussed in the next section.

3. Veblen's contributions to the Institutional School and its relevance to the study of agribusiness systems

Institutional Economics is a branch of thinking that has its starting point from the assumption that economic behavior is conditioned by the social environment that surrounds transactions. The characteristics of social interactions - political, juridical, organizational, domestic life, among others - have influence on the economic system, and so forth to societal well-being. That process also works in a reverse way, in the sense that the functioning of the economic system provides incentives to changes in the organization of society.

The study of institutions in economic thinking is pervasive since the Classical School, from publications of Adam Smith (1776), John Stuart Mill (1848), and Alfred Marshall (1890). However, the institutional approach gained strain in the works of the German Historical School. In accordance to Brue (2005), the German Historical School supported the idea that economic systems should be studied as an integrated and intertwined part of social reality. That school argued against the use of abstract and deductive models of thinking and was in favor of a theorizing that was grounded on inductive methods of study of society. Among several authors, Gustave Schmoller's (1838 – 1917) contributions were pivotal as a leader of that school of thinking. Schmoller defined the functional concept of institutions "[...] it offers a firm basis for shaping social actions over long periods of time" (Schmoller, 1900, p. 61 apud Furubotn and Richter, 2005, p. 7). In accordance Schmoller (1915), institutions have the role of providing mechanisms to curb specific interests of individuals and groups that jeopardize social order.

It is indeed the fundamental idea of our entire outline that it is the social institutions which, while in constant course of improvement, while becoming more and more ethical, set certain limits to the natural play of the acquisitive forces; to the greed of the strong and the rich, and to the growing economic differences of income and their causes (Schmoller, 1915, p. 523)

In that perspective, institutions balance social gains and costs, and by doing that limit the scope of class conflicts. Schmoller (1915) believed that institutions should be envisioned to strengthen moral and ethical codes of behavior that curb opportunism and egoism. In that view, the operation of markets requires a social order that provides the collective bargaining of interests. Consequently, markets are the result of the previous development of institutions that enhance trust and cooperation implemented by design and not by the autonomous functioning of the capitalist economy (Peukert, 2001).

The American Institutional School, also known as Old Institutional School (OIS), has followed the research agenda of its German counterpart, regarding the adoption of the theoretical inductive method and the interdisciplinary approach of research. However, the authors of the American Institutional School stressed out the importance of social

transformations, accomplished by democratic reforms, and the regulation of the economy by the State (BRUE, 2005). Among the major authors of the American Institutional School are Thorstein Veblen (1857–1929), Wesley Clair Mitchell (1874-1948) and John Rogers Commons (1862-1945).

John R. Commons (1931) has pointed out that conflicts of interest among agents make it necessary for society to work out social arrangements – the institutions – that guarantee a framework of rules to govern interactions. That rules are emanated from the legal regime and from informal practices that induce trust and cooperation among individuals. Institutions are what Commons called “collective action” that are envisioned to guarantee the functioning of society in general and the effectiveness of the economic system in special.

If we endeavor to find a universal circumstance, common to all behavior known as institutional, we may define an institution as collective action in control, liberation and expansion of individual action. Collective action ranges all the way from unorganized custom to the many organized going concerns, such as the family, the corporation, the trade association, the trade union, the reserve system, the state. The principle common to all of them is greater or less control, liberation and expansion of individual action by collective action. (Commons, 1931, p. 648).

In that approach, institutions have an important role to economic performance by reducing costs related to the enforcement of transactions. That costs are related to bounded rationality and opportunism that are pervasive among economic interactions (Furubotn and Richter, 2005)

According to the Old Institutional School, human intelligence is linked to the social environment that surrounds it. By this standpoint, cognitive capacity is a social product developed from the exercise of natural propensities in social interactions, and the characteristics of it depend upon the society in which individuals are born. Wesley Mitchell (1916) in his analysis of the role of money in society provided a clear exposition of that view:

Thus intelligence is a social product developed in the individual through the exercise of his inherited propensities, and its special character depends upon the society into which the individual is born. The great social institutions, such as speech, writing, the practical arts, and religion, which are passed on with cumulative changes from one generation to another, play the leading role in this nurture of intelligence. They are standard behavior habits - habits of feeling, thinking, and acting in the face of frequently recurring situations which have approved themselves to the community (Mitchell, 1916, p. 155-156).

One of the basic assumptions of institutional thinkers is that human behavior is learned and depends upon acculturation of beliefs that are the result of social exposition to other human beings. In accordance to Clarence E. Aires (1921), human “nature” and social institutions are interconnected with each other, hence behaviors are consequence of beliefs “...worked into the whole cultural-emotional life of a people by the practice of generations” (Aires, 1921, p. 565).

In that regard, a remarkable institutional approach came from Thorstein Veblen based on the evolutionary principles originated from Charles Darwin’s works. Veblen’s contributions covered a vast array of original propositions that aimed to establish in Economics a theoretical framework in accordance with evolutionary principles and pragmatism psychology related to habits evolvement among individuals and society (Hogdson, 2007).

The innovative perspective of Veblen (1898) starts with a concept of institution that is related to the structuring of social interaction based on prevalent social rules. In accordance with the author, the language, the currency, the legal system, the weight and measures system, the good manners etiquette, the firms, among several others, are instances of institutions. In regard to that definition of institution, it is highlighted in Veblen's theorizing that organizations are also institutions, because they enforce rules and norms that govern individuals' interactions internally to the firm and their engagement with external players (Hodgson, 2006).

Hence, in accordance to Hodgson (2007), institutions' main purpose is to provide order over individuals' expectations about possible behaviors and to increase predictability in human activities. Institutions at the same time that restrain individuals enable behaviors by providing coordination to social interaction. In that sense, the role of institutions is to enforce possible options of behavior and magnify the scope of sociability.

Also is stated in Veblen's (1898) framework that evolutionary premises are not based on unidirectional causal relationships. The basis of his analysis is the perception that the way of thinking of individuals is embedded in mental habits that are formed by the trajectory of social organization. In that view, the working out of the economic system is the result of mental habits that are propensities to behave in particular ways by particular situations (Hodgson, 1998).

In accordance to Veblen (1909), human nature does not resemble the utilitarian perspective but is a complex mix of factors related to genetically inherited traces and experience gained from the social interaction. In that sense, human behavior is the result of habitual practices and proclivities that are continuously assessed by their fitness to the social environment. Hence individuals' decisions influence and mold society, but also inversely the social environment induces individuals' choices and behaviors in a recursive way. That holistic understanding is stressed out in Veblen's approach by the endogenous character of the causal relationship between individuals and institutions, called by Hodgson (2007) as "*reconstitutive downward causation*".

In accordance with Veblen, the variable that links institutions to individuals' choices is the functioning of habits that are forged by behavior patterns. That mechanism is not unidirectional and also provides the causal connection exercised by individuals' choices over institutions, in line to NIE point of view. The evolutionary dynamics of Veblen's approach is based on the notion that individuals' choices determine institutional evolvement and induce the emergence of habits that are reinforced or not by their effectiveness. That process of change is procedural and endogenous and provides important implications to institutional path-dependence and has no maximizing assumptions.

By that theoretical standpoint, institutions are recurrent ways of thinking that are embedded in habits molded by society in general and by organizations in particular. The institutional analysis of Veblen does not take organizations only as governance structures that minimize transaction and production costs (Hodgson, 2006). Organizations have the role of institutions because they induce patterns of behavior that rule over collective interactions. In that sense, habits can be enforced by the organizational culture and spread to the social structure through organizations' external relationships (Hodgson, 2007).

In a micro-institutional perspective, firms are institutions because they enforce rules and norms in relations performed under the *fiat* of the hierarchy. The evolvement of governance rules and norms under the organizational domain of the firm is based on tacit knowledge and has idiosyncratic character. Learning and acculturation have important roles to

strengthen rules and norms that increase the homogeneity of behaviors in accordance with organizational cultures (Hodgson, 2007).

It is important to make clear that the understanding of the institutional role of the firm is not objected by the NIE perspective. In Douglas North's macro-institutional framework firms are envisioned only as organizations and not institutions, because they have the role of actors in the greater societal arena. That is the result of his analytical emphasis on the macro-institutional framework, and it is not an all-encompassing assertion that firms are not institutions (Hodgson, 2006). In accordance to Lopes (2013), the distinction between Veblen and North approaches is related to the emphasis and direction of causality. In Douglas North framework institutions have the role of restricting behaviors (rules and norms), while in Veblen's theory institutions are the result of individuals' habits of thought.

Veblen's contributions to economic science have a broad spectrum of applications to the analysis of agribusiness systems. The understanding of organizations as institutions that induce habits of thought sheds light on the ability to lead firms to enforce practices that become behavior patterns in agribusiness systems. Therefore, those strategies require the imposition of rules and norms to most of agribusiness participants. Collective action is molded by the intentionality of leading firms that induce convergent or divergent behaviors by other players (Pereira, Dathein and Conceição, 2014).

In agribusiness systems, collective action is strongly influenced by organizational strategies originated from the leadership role of input, processing, and trading firms. Farmers' response to those strategies strengthens or weakens collective action depending upon the distribution of economic incentives along the supply chain. In that sense, there is a dual relationship between organizations and institutional change in agribusiness systems. Operational practices based on rules and norms are implemented by leading firms' strategies that induce convergent or divergent responses by farmers and suppliers in general that affect supply chain coordination. That process resembles Veblen's evolutionary framework based on bottom up and top down recursive causal relationships, described by Hodgson (2007), against NIE methodological individualism.

In the next section, it will be assessed the corporate trajectory of Monsanto in the market of GM seeds. The perspective followed in that section is to discuss the role of that company in accordance with Veblen's standpoint and use it as an illustration of the compliance of the theory to the analysis of agribusiness systems.

4. The institutional development of the Brazilian market of genetically modified seeds and the role of Monsanto Company

Monsanto started its operation in Brazil in 1951 by the acquisition of firms that had participation in the market of inputs to agriculture. In 1970, it synthesized glyphosate in the country, the active principle of Roundup herbicide. Roundup is the most sold chemical product in the world, and is registered to use in more than 120 countries (Monsanto, 2015). In 1984 Roundup started to be produced in the country after the investment by Monsanto of its first factory in Brazil to the production of the line Roundup Original, Roundup WG, and Roundup Transorb (Moura and Marin, 2013). The year 2000 was a turning point to Monsanto, then a large chemicals conglomerate with a small agriculture division, that was bought by Pharmacia & Upjohn, after that the company was focused totally on agriculture (Hindo, 2007). Since 1981, Monsanto began to invest in biotechnology, but the choice to turn that the central focus of the company happens in the 1990 decade. In Brazil in the years following

1995, it was initiated a movement to buy-out several leading Brazilian seed companies (Pelaez and Schmidt, 2000).

In 1997, Monsanto reached a leading position in the seed market in Brazil when it acquired the soybean genetic improvement program of FT seeds. That company had a strategic position in the development of cultivars for tropical agriculture. The merger of Monsanto seed operations with FT had the result of the formation of a new division called Monsoy (Santini and Paulillo, 2003).

Monsanto obtained by that gradual strategy of expansion a hegemonic market-share in soybean and corn seeds and agrichemicals in Brazil. In accordance to the diverse Brazilian soil and weather conditions, those investments had to be accompanied by the increase of its germplasm bank of cultivars. That trend was worldwide, for instance in 2007, more than half the crops grown in the U.S., including nearly all the soybeans and 70% of the corn, were genetically modified. Also, 90% of the genetically modified seeds in the world were sold either by Monsanto or by competitors that license Monsanto genes in their seeds (Hindo, 2007).

At that time, Monsanto still did not have enough background in the seed market and did not have developed technologies fitted to Brazilian conditions of tropical agriculture. That was the main reasons for the strategy to acquiring firms already had developed previously germplasm banks and cultivars adapted to Brazilian environments (Moura and Marin, 2013).

In accordance to Palaez and Schmidt (2000), the public debate about the diffusion of transgenic soybean was a difficult endeavor for Monsanto during its trajectory of expansion in Brazil. In 1998 Monsanto submitted to CTNbio, the Brazilian agency responsible for approving the commercialization of genetic modified products, for technical assessment, the Roundup Ready soybean cultivar. Environmental activists based on NGO's and IDC – Defense Consumer Institute had success in obtaining a temporary court decision that prohibited CTNbio from approving Roundup Ready soybean cultivar.

At the same time, the debate in the Federal Congress, more precisely in the Environment Committee, to discuss the commercialization of transgenic cultivars had the articulated participation of Monsanto's technicians and researchers. The technical support team of the company, as well as its connections with worldwide research centers, universities, and regulation agencies, favored the legislation to be approved by the Legislative House (Pelaez and Schmidt, 2000).

However, for legal reasons, Monsanto was not able to start to market Round Ready, because the firm was not able to cancel the petition deferred by the Court of Law that prohibited the soybean cultivar to be commercialized without previous environment impact studies. However, GM soybean cropping has not been stopped in Brazil, especially in the South region of the country, because of the smuggling of seeds from Argentina. Widespread cropping was performed by farmers with the use of seeds that crossed borders illegally. At the same time MAPA, the Agriculture Office maintained its support to Monsanto and approved the registry of five varieties of GM soybean developed by Monsoy division (Fowler and Zylbersztajn, 2013).

In the institutional arena, the LPC – Cultivars Protection Law was a landmark to the trend of adapting the regulatory framework of the country to the international standards of property rights. In accordance to Pessanha and Wilkinson (2005), the USA, and European countries were the first to pass bills to guarantee property rights for the development of cultivars. In the USA in the 1930 decade, the "Plant Protection Act" (PPA) legislation was enforced to ascertain property rights over plants that have asexual reproduction. In the 1970

decade, the “Plant Variety Protection Act” (PVPA) extended the rights to all sexual reproduced plants varieties. In Europe the most important system to register cultivars was the Community Plant Variety Rights (CPVR) system created by EU Regulation that was based on the 1991 Act of the UPOV Convention, and provided protection for plant varieties throughout the EU (Moura and Marin, 2013). In accordance to Wilkinson and Castelli (2000), that trend was the result of the GM companies’ pressure on governments to pass legislations that guaranteed property rights with worldwide enforcement. That goal was first accomplished in the USA, later was followed by other OECD countries, and afterward by developing countries.

Also in accordance to Moura and Marin (2013), it was drafted by World Intellectual Property Organization (WIPO), an agency of United Nations Organizations, a report oriented to the protection of technological innovations and intellectual property rights in agriculture biotechnology. The authors, however, stressed out that the debate was captured by regulating agencies and biotechnology companies. That tended to induce countries to implement legislations that enforced property rights in accordance to TRIPS – Trade Related-Aspects of Intellectual Property Rights, one of the three pillars of the WTO – World Trade Organization. That agreement included enforcement procedures that allowed retaliation across agreements under the resolution of disputes by WTO (Maredia, 2001). The Brazilian government was induced to comply with the WTO Agreement and to pass a legal framework by TRIPS regulation (Buanain and Carvalho, 2000).

Pelaez and Schmidt (2000) pointed out that at the time of the discussion of the legislation in Brazil, there was a fierce enrollment of the USA government in support of its international companies. The direction of the enforcement was to guarantee institutional reforms worldwide that was in favor of property rights on biotechnology development related to chemicals, food and pharmaceutical products. The debate was incorporated to the liberalization discussions by WTO and GATT, and was a necessary step for further expansion of the multilateral discussions on trade (Santos, 2013).

In result of the influence of the international legal framework and in order to enforce intellectual property rights have been promulgated the Industrial Property Law (Law nº 9.279, 05/14/1996) (Brasil, 1996) and the Cultivars Protection Law (Law nº 9.456, 04/25/1997). Afterward, it was enacted in 2005 the law nº 11.105 called Biosecurity Law which established control and monitoring mechanisms regarding genetically modified organisms (GMO). In accordance with the Agriculture Department (MAPA) all activities related to GMO have been regulated by the law nº 11.105/2005, hence it is a law that aimed to guarantee biosafety. In the legislation have been enacted the CNBS – National Council of Biosecurity, and the CTNBio – National Technical Commission for Biosecurity. The CNBS by the 8th article of the Law nº 11.105/2005 is an agency for superior advising of the Presidency with the objective to formulating and implementing the National Biosecurity Policy (PNB).

Regarding the political discussions about the regulation of GM organisms, Pessanha (2002) has stated the important role of interest lobbies on members of the Federal Congress and public opinion. In the same direction, Araújo (2001) described in detail the political connections of economic interests groups that worked in favor of GM corporations’ points of view. Moura and Marin (2013) also pointed out that in consequence of the great investments and risks related to the technological development of GM organisms it was of key strategic importance for corporations the result of the deliberations of Congress. In the case of the Law of Protection of Cultivars, Santos (2013) provided a detailed assessment of the roles of

agriculture associations, seed companies, and biotechnology corporations during the discussions of that legislation.

It is important to stress that up to 1995 there was no property rights protection to biotechnological innovations in Brazil. Bruch et al. (2005) supported the need for institutional guarantees to those activities. However, the design of the incentives supported by the legislation should have balanced the interests of the diverse members of society with the ones of the biotech companies. In regard to the Cultivars Protection Law (1997) property rights were enacted to protect the development of new genetic uses of DNA sequences to applied ends like GM seeds, and not to patent the final organism itself. The legislation aimed to incentive the development of new cultivars and to induce innovations developed by international corporations to be incorporated in Brazilian agriculture systems. The multiplication of cultivars by users was restrained by law, and it was enforced the right to charge royalty fees to the genetic component of innovations.

In that sense, in accordance to the referee of Alessandro Octaviani Luis, a member of CADE³ – Economic Defense Administrative Council, in the case of the process n° 08700.004957/2013-72, related to Bayer S.A against Monsanto Ltda. (Brasil, 2014b), the Cultivar Protection Law allowed farmers to save seeds for own use. In that legal viewpoint, farmers would acquire the GM technology only once, paying afterwards royalties to the genetic developers, in accordance with Industrial Property Law.

However, the lack of control over the origin of GM seeds induced Monsanto to develop a scheme to collect royalty fees indirectly. In that scheme payment slips are delivered to farmers at the moment of them acquiring seeds from dealers. When farmers sell their production to trading companies, it is performed a field test to detect GM traits in grain production. If the amount of royalty credits generated from payment slips is smaller than the amount of grain delivered by farmers, Monsanto charges a default rate in the value of 2% of the production that exceeds the farmers' credits (Fowler and Zylbersztajn, 2015). The incentives for Monsanto to develop a royalty collection scheme in Brazil are related to the difficulties of enforcing property rights:

The property rights protection strategy used by Monsanto was based on unbundling the attribute 'tolerance to glyphosate' from the seed, which introduced a particular way to negotiate about the attribute regardless of the way the seed was purchased or acquired This strategy is relevant because the collection of royalties is based on seeds purchased in the black market and on saved seeds. The case contrasts with the U.S. case, in which Monsanto's protection effort focuses exclusively on combating seed saving (Fowler and Zylbersztajn, 2015, p. 75).

The dominant position of Monsanto in the GM seed market enabled it to enforce commercial practices related to three different mechanisms in Brazil. In accordance to Eduardo Pontual, another member of CADE, in his exposition related to a process of non-competitive acts in the licensing of soybean seeds technology (BRASIL, 2013b), Monsanto envisioned a complex framework to collect property rights fees. The company charges "seed royalties" that are fees paid at the moment of acquiring seed, and "grain royalties", that are paid by farmers at the moment of delivering grain to trading companies, and also "multipliers royalties" that are paid by seed multiplier companies to Monsanto.

³ CADE is a federal agency that works in favor of free competition, it is responsible to investigate, litigate and decide over processes about concurrence litigations (CADE, 2015)

In that regard, Araújo (2001) addressed that during the discussions about the Brazilian property rights legislation, the risks related to oligopolistic market concentration have been envisioned. That view was related the ongoing trend of mergers and acquisitions in biotechnology and agrichemicals sectors. In that sense, the institutional environment built by the Industrial Property Law (1996), the Cultivars Protection Law (1997) and the Bio-security Law (2005) have been envisioned to deliver incentives to innovation and development in agriculture, but also provided tools for Monsanto to strengthen its market position.

The vision that underlay the institutional matrix that was implemented in the GM seed market aimed to diminish uncertainty and opportunism among market players. However, real world institutions are not always the result of efficient outcomes because interest groups can dominate the institutional debate. In that regard, the legal framework enacted in Brazil in support to property rights enforcement was a by-product of an international agenda that aimed to strengthen international property right regimes (IPR). That point of view regarded institutional reform as a condition for developing countries to modernize their agriculture systems and to be more integrated into the world trade.

Agricultural development in developing countries has, in the past, benefited from the wide availability of plant and animal genetic resources, freedom to operate with the most modern scientific methods, and technology spillovers. However, the already expanded IPR regimes in the industrialized world and the IPR changes required by the TRIPS agreement in the developing world is expected to have profound implications on the way scientists exchange materials and ideas, and especially the way agricultural research is organized (Maredia, 2001, p. 12)

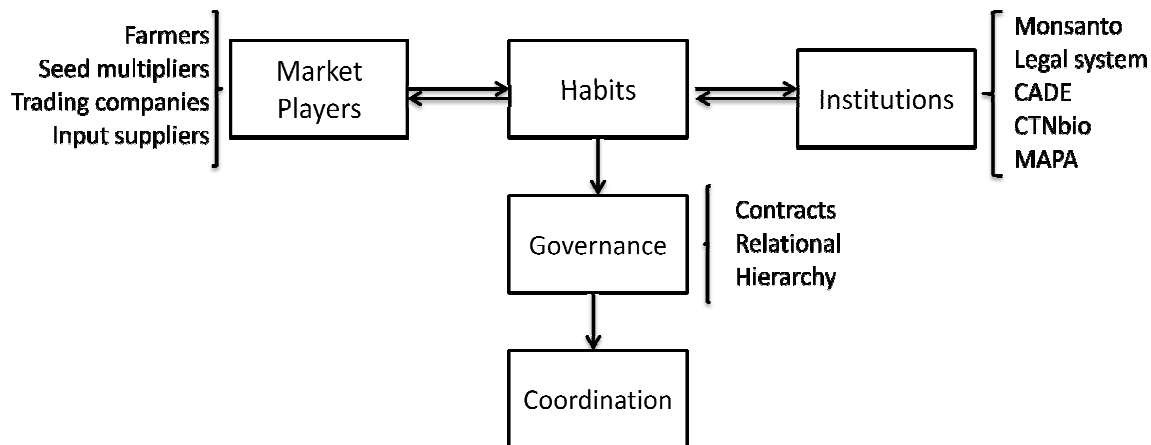
Nonetheless the intentions that grounded the framework that enforced property rights in Brazil, the applied result was to enable Monsanto to carry out its strategic plan to conquer a prevalent role in GM seed market. In accordance with Veblen's approach (1909; 1898) and Hodgson (2006; 2007) it is possible to realize the institutional character of Monsanto, in the sense of its capacity to enforce habits that are followed by farmers, trading companies, and seed multipliers. That is attested by Monsanto's paramount role during the enactment of an institutional matrix that was in favor of its corporative interests, and also by the enforcement of the scheme to collect royalty fees that embraced all players of the agribusiness system. On the other hand, the legal disputes about royalty collection from GM seeds indicate the endogenous and recursive relationship between institutions and actors in line to Hodgson's (2006; 2007) concept of "*reconstitutive downward causation*". Monsanto enforcement of practices induced players of the GM seed agribusiness system, especially farmers, and multiplier seed companies, to act to alter the institutional matrix. That resulted in court disputes that provided new legal interpretations of the application of property right laws.

Figure 1 below provides a visual assessment of Veblen's framework applied to the analysis of the institutional relationships in the Brazilian seed agribusiness system. In accordance with that approach, market players have mental models that lead to habits of thought that are embedded in the institutional matrix. However, in accordance with "*reconstitutive downward causation*" institutions also have a recursive influence on the evolvment of habits of thought. Here lies an important distinction from NIE, Veblen's theoretical model institutions are not envisioned to deal with transaction costs, but to restrain and enable behaviors that induce habits of thought. In the framework of Figure 1, Monsanto, CTNbio⁴, CADE⁵ and MAPA⁶ are all considered as institutions that act over habits, plus the

⁴ National Technical Biosecurity Committee

legal system. Institutions and market players both have roles over habits of thought that induce the choice for governance arrangements and the resulting coordination of the seed agribusiness system.

Figure 1 – Brazilian GM seed institutional framework based on Veblen's approach



Source: Elaborated by the authors

The approach outlined in Figure 1 stands out in a distinctive position from Williamson's (1975; 1985) micro-institutional model in which firms are only governance structures that aim to minimize transaction costs. In that sense, Veblen's diverse concept of institution provides a theoretical tool to the understanding of the endogenous character of institutional change in agribusiness. Also, it enables to outline models in which firms have institutional roles that go beyond transaction costs. Leading firms in agribusiness are able to enforce rules and norms of behavior that become habits followed by market players, and by doing that provide coordination to agri-food supply chains.

5. Conclusions

In line to Veblen's (1900; 1898) and Hodgson (2006; 2007) theoretical framework, Monsanto is able to coordinate GM seed market in accordance with its strategic objectives by enforcing habits of behavior for other players in that agribusiness system. Monsanto by the interaction with other players in the GM seed agribusiness was able to enforce habits of behavior as a consequence of its leading position, and by extension to ensure systemic coordination in accordance to its interests. That was possible by the role Monsanto features in the GM seed agribusiness system over farmers, input firms, and seed multipliers firms to whom it maintains commercial interactions. The scheme to collect royalty fees from farmers is an instance of an operational rule that was implemented by Monsanto because of its institutional role. In the same direction, Monsanto was able to influence the enactment of a legal regime that supported its economic interests in Brazil as well internationally.

That is distinctive from NIE that follows an approach of methodological individualism in which institutions are the result of individual choices. Veblen's theory argues that institutions are as much the result of individual choices as act over choices through the

⁵ Economic Defense Administrative Council

⁶ Brazilian Agriculture Department

enforcement of mental habits. So there is a recursive relationship between individual and institutions. Veblen's both stressed out contributions (i) a broad concept of institution, and (ii) institutional recursive relationships are of great value to the investigation of agribusiness systems.

Therefore, in accordance to Veblen's approach, Monsanto is an institution because it is able to enforce and restrain behaviors in the GM seed agribusiness system. On the other hand, Monsanto has induced counteractions by farmers and seed multipliers that aimed to alter the institutional matrix established. Both instances are evidence of the endogenous character of the institutional change in the GM seed agribusiness system that resembles Veblen's evolutionary approach.

References

Araujo, J.C. (2001) "A concentração nas empresas do agribusiness e de biotecnologia", *Revista de Política Agrícola*, 10(2): 32-38.

Buainain, A., Carvalho. (2000) "Propriedade Intelectual em um Mundo Globalizado", *Parcerias Estratégicas*, 9: 145-153.

BRASIL (1996), Lei de Propriedade Industrial (Lei nº 9.279/1996).

BRASIL (1997), Lei de Proteção de Cultivares (Lei nº 9.456/1997).

BRASIL (2005), Lei de Biossegurança (Lei nº 11.105/2005).

BRASIL (2010), Serviço Nacional de Proteção de Cultivares - Ministério da Agricultura, Pecuária e Abastecimento. Informações aos Usuários de Proteção de Cultivares ("Carta de Serviços ao Cidadão").

BRASIL (2013a), Ministério da Justiça. Conselho Administrativo de Defesa Econômica (CADE). Voto-Vista do Conselheiro Eduardo Pontual relativo ao Ato de Concentração nº 08012.002870/2012-38, Ato de Concentração nº 08012.006706/2012-08, Ato de Concentração nº Ato de Concentração nº 08700.003898/2012-34, Ato de Concentração nº 08700.003937/2012-01.

BRASIL (2013b), Ministério da Justiça. Conselho Administrativo de Defesa Econômica (CADE). Relatório de Gestão do CADE de 2013.

BRASIL (2014a), Conselho Administrativo de Defesa Econômica (CADE). Processual (Atas de Sessões de Julgamento).

BRASIL (2014b), Conselho Administrativo de Defesa Econômica (CADE). Voto do Conselheiro Alessandro Octaviani Luis relativo ao Ato de Concentração nº 08700.004957/2013-72.

Bruch, K.L., Rambo, A.G., Andrade, J.J., Martinelli Júnior, O., Dewes, H. (2005), “Barreiras à entrada no mercado brasileiro de sementes transgênicas”, XLIII Congresso da Sober. Ribeirão Preto.

Brue, S.L. (2005), *História do pensamento econômico*. São Paulo: Pioneira Thomson Learning.

Caleman, S. M. de Q., Zylberstajn, D. (2013), “Falhas organizacionais: tipologia, determinantes e proposta de modelo teórico”, *Organizações & Sociedade*, 20(65): 261-282.

Carvalho, S. M. O de; Pessanha, L. D. R. (2001), “Propriedade intelectual, estratégias empresariais e mecanismos de apropriação econômica do esforço de inovação no mercado de sementes”, *Revista de Economia Contemporânea*, 3(1): 151-182.

Coase, R. H. (1937), “The nature of the firm”, *Economica*, 4(16): 386-405.

Commons, J.R. (1931), “Institutional economics”, *The American Economic Review*, 21(4): 648-657.

Costa, N.L., Santana, A.C. (2013), “Poder de mercado e desenvolvimento de novas cultivares de soja transgênicas e convencionais: análise da experiência brasileira”, *Revista de Ciências Agrárias*, 56(1): 61-68.

Farina, E.M.M.Q., Azevedo, P.F., Saes, M.S.M. (1997), *Competitividade: mercado, estado e organizações*, Editora singular, 286 pp.

Figueira, M., Zambalde, A.L, Sugano, J.Y. (2011), “Inovação de modelo de negócios em uma empresa de biotecnologia agrícola”, *Revista de Administração e Inovação*, 8(2): 106-131.

Fowler, G., Zylbersztajn, D (2013), “Economic Governance of Property Rights: comparative analysis on the collection of royalties in genetically modified soybean seeds”, *Revista de Economia e Sociologia Rural*, 51(1): 25-44.

Fowler, G., Zylbersztajn, D (2015), “Heterogeneity of property rights strategies in a global context: the case of genetically modified seeds”, *Global Strategy Journal*, 5: 69-85.

Fuck, M. P., Bonacelli, M. B. (2007), “A pesquisa pública e a indústria sementeira nos segmentos de sementes de soja e milho híbrido no Brasil” *Revista Brasileira de Inovação*, 6(1): 87-121.

Fuck, M. P., Bonacelli, M. B. (2008), “O avanço na utilização de sementes geneticamente modificadas no mundo e suas implicações para a pesquisa agrícola no Brasil”, *Economia & Tecnologia*, 12(4): 83-94.

Fuck, M. P.; Bonacelli, M. B. (2009), “Sementes geneticamente modificadas: (in)segurança e racionalidade na adoção de transgênicos no Brasil e na Argentina”, *Revista Iberoamericana de Ciência Tecnología y Sociedad*, 4(12): 9-30.

Furubotn, E.G.; Richter, R. (2005), *Institutions and economic theory: the contribution of the new institutional economics*, 2^a ed. Ann Arbor: The University of Michigan Press, 672 pp.

Gorman, M.E., Werhane, P.H., Meadead, J. (2001), “Monsanto and the development of genetically modified seeds”, *Social Science Research Network*.
<http://papers.ssrn.com/sol3/papers.cfm?abstract_id=908734>

Guanziroli, C.E.; Buainain, A.M.; Sousa Filho, H.M. (2008), *Metodologia para Estudo das Relações de Mercado em Sistemas Agroindustriais*, Brasília: IICA.

Guerrante, R. S. (2004), “Comportamento Estratégico das Grandes Empresas do Mercado de Sementes Geneticamente Modificadas”, *Impulso*, 15(36): 59-76.

Guerrante, R. S., Antunes, A. M. S., Pereira JR, N (2010), “Liderando Através da Inovação na Biotecnologia: estudo de Caso da Monsanto”, *Revista de Economia & Tecnologia*, 6(2): 87-99.

Hindo, B. (2007) “Monsanto: Winning the Ground War - how the company turned the tide in the battle over genetically modified crops”, *Business Week*, (17 april 2007).

Hodgson, G. (1998) “The approach of Institutional Economics”, *Journal of Economic Literature*, 36(1): 66-192.

Hodgson, G. (2006), “What are institutions?”, *Journal of Economic Issues*, XL(1):.1-26.

Hodgson, G. (2007), “The revivel of Veblenian Institutional Economics”, *Journal of Economic Issues*, XLI(2):.325-340.

Hiratuka, C. (2007), “Estruturas de coordenação e relações interfirmas: uma interpretação a partir da teoria dos custos de transação e da teoria neo-schumpeteriana”, *Economia da Empresas*, 4(1): 17-32.

Lima, P.P. (2014), “Licenciamento de tecnologia sem cláusula de exclusividade: uma análise a partir do caso de licenciamento da intacta RR2 PROTM”, *Revista de Defesa da Concorrência*, 2(1):.64-88.

Lopes, H. C. (2013), “Instituições e crescimento econômico; os modelos teóricos de Thorstein Veblen e Douglass North”, *Revista de Economia Política*, 33(4): 619-637.

Makadok, R., Coff, R. (2009), “Both market and hierarchy: an incentive-system theory of hybrid governance forms”, *Academy Of Management Review*, 34(2): 297-319.

Maredia, M. K. (2001), “Application of Intellectual Property Rights in Developing Countries: Implications for Public Policy and Agricultural Research Institutes”, *World Intellectual Property Organization*, 90 pp.

Marshall, A. (1890[1983]), “Princípios de Economia”. *Os economistas*: v1 e v2. São Paulo: Abril Cultura, 680 pp.

Ménard, C. (2004), “The economics of hybrid organizations”, *Journal Of Institutional And Theoretical Economics*, 160(3):345-376.

Milgron, P., Roberts, J. (1992), *Economics, organization and management*, Prentice-Hall, 621 pp.

Mill, J. S. (1848[1996]), “Princípios de Economia Política”, *Os economistas*: v1 e v2. São Paulo: Nova Cultural, 596 pp.

Mitchell, C.W. (1916), “The role of money in economic theory”. *The American Economic Review*, 6(1): 140-161.

Monsanto (2015b) “Company History”. Available at:
<<http://www.monsanto.com/whoweare/pages/monsanto-history.aspx>>

Moura, L.C.M., Marin, J.B. (2013), “Rede empresarial: a estratégia da produção de sementes de soja transgênica em Goiás”, *Interações*, 4(1): 21-36.

North, D. C. (1990), *Institutions, Institutional Change, and Economic Performance*, 151 pp. Cambridge: Cambridge University Press.

North, D. C. (1991), “Institutions”, *Journal of Economic Perspectives*, 5(1): 97-112.

North, D.C. (1994), “Economic performance through time”, *The American Economic Review*, 84(3): 359-368.

North, D. C. (2005), “Understanding the process of economic change”, Princeton/Oxford: Princeton University Press.

Pelaez, V., Schmidt, W. (2000), “A difusão dos OGM no Brasil: imposição e resistências”, *Estudos Sociedade e Agricultura*, 14: 5-31.

Pereira, A. J., Dathein, R., Conceição, O. A. C. (2014), “A empresa e seu ambiente de interação: os limites da Teoria dos Custos de Transação e o alcance da Teoria Institucionalista-Evolucionária”, *Economia e Sociedade*, 23(1):33-61.

Pessanha, L. D. R. (2002), “Transgênicos, recursos genéticos e segurança alimentar: uma análise da judicialização do conflito da liberação da soja RR no Brasil”, *Revista Cadernos de Debate*, IX: 62- 92.

Peukert, H. (2001), “Bridging Old and New Institutional Economics: Gustav Schmoller and Douglass C. North, Seen with Old institutionalists’ Eyes”, *European Journal of Law and Economics*, 11(2): 91-130.

Rindfleisch, A.; Heide, J. B. (1997), “Transaction cost analysis: past, present, and future applications”, *The Journal of Marketing*, 61(4): 30-54.

Saes, M. S. S.; Silveira, R. L. F. (2014), “Novas formas de organização nas cadeias agropecuárias brasileiras: tendências recentes”, *Estudos Sociedade e Agricultura*, 22(2): 386-407.

Santini, G., Paulillo, L. F. (2003), “Mudanças tecnológicas e institucionais na indústria de sementes no Brasil: uma análise aplicada aos mercados de milho híbrido e soja”, *Agricultura em São Paulo*, 50(1):25-42.

Santos, P.E.C. (2013), “Marcos regulatórios, inovações biotecnológicas e a concentração da indústria de sementes de soja, milho e algodão no Brasil”, Tese de Doutorado, Universidade de Brasília/Faculdade de Agronomia e Medicina Veterinária.

Schmoller, G. F. (1915), “Schmoller on Class Conflicts in General”, *American Journal of Sociology*, 20(4): 504-531.

Smith, A. (1776[1983]), “A riqueza das nações” *Os economistas*: v1 e v2. São Paulo: Abril Cultura, 751 pp.

Théret, B. (2003), “As instituições entre as estruturas e as ações”, *Lua Nova*, São Paulo, 58: 225-254.

Veblen, T. (1909), “The Limitations of Marginal Utility”, *Journal of Political Economy*, 17(9):.620-636.

Veblen, T. (1898[1998]), “Why is Economics not an evolutionary science?”, *Cambridge Journal of Economics*, 22, pp.403- 414.

Vieira Filho, J.E.R, Vieira, A.C.P. (2013), “A inovação na agricultura brasileira: uma reflexão a partir da análise dos certificados de proteção de cultivares”, *Discussion Paper* nº 1866, Rio de Janeiro: Instituto de Pesquisa Econômica Aplicada (IPEA).

Wilkinson, J., Castelli, P (2000), *A transnacionalização da indústria de sementes no Brasil: biotecnologias, patentes e biodiversidade*, Rio de Janeiro: ActionAid Brasil.

Williamson, O. E. (1975), *Markets and Hierarchies: Analysis and Anti-Trust Implications: A Study in the Economics of Internal Organization*, New York: Free Press, 288 pp.

Williamson, O. E. (1979), “Transaction Cost Economics: The Governance of Contractual Relations “, *Journal of Law and Economics*, 22(2): 233-261.

Williamson, O. E. (1985), *The economic institutions of capitalism: firms, markets, relational contracting*, The Free Press, 442 pp.

Williamson, O. E. (1991), “Comparative economic organization: the analysis of discrete structural alternatives”, *Administrative Science Quarterly*, 36(2):.269-296.

Williamson, O. E. (1993), “Transaction Cost Economics and Organization Theory. Industrial and Corporate Change”, *Journal of Industrial and Corporate Change*, 2(1): 107-156.

Williamson, O. E. (2000), “The New Institutional Economics: Taking Stock, Looking Ahead”, *Journal of Economic Literature*, 38(3):.595-613.

Zylbersztajn, D., Farina, E. M. M. Q. (1999), “Strictly Coordinated Food-Systems: Exploring the Limits of Coasian Firm”, *International Food And Agribusiness Management Review*, 2(2): 249-265.

Zylbersztajn, D. (2005), “Papel dos contratos na coordenação Agro-Industrial: um olhar além dos mercados”, *Revista de Economia e Sociologia Rural*, 43(3): 385-420.

Zybersztajn, D. (1995), “Estruturas de governança e coordenação do agribusiness: uma aplicação da Nova Economia das Instituições”, *Tese de livre docência*, Departamento de Administração da Faculdade de Economia, Administração e Contabilidade da Universidade de São Paulo.