



Governance of local productive arrangement: a case study in the milk LPA of Santana do Livramento (RS) – Brazil

**Governança de arranjo produtivo local: um estudo de caso no APL
do Leite de Santana do Livramento, RS, Brasil**

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Abstract: The governance of Local Productive Arrangements (LPA's) represents an important path of management considering the complexity of interfaces with different agents of local and regional development involving institutions, enterprises and associations in response to regional strategies focusing on productive agglomerations. This paper results from a governance configuration analysis of the Local Productive Arrangement of milk from Santana do Livramento (RS). It is a descriptive-exploratory case study, with qualitative approach. Therefore, it was possible to verify that milk LPA from Santana do Livramento presents, predominantly, multilateral horizontal or public-private governance, although multiple ways configure it as hybrid governance based on collaboration, confidence and investment in specific assets, minimizing uncertainties, and indicating the potential and perspective of a sustainable development.

Keywords: Governance; Local productive arrangement; Regional development.

Resumo: A governança de arranjos produtivos locais (APL) constitui importante meio de gestão, tendo em vista a complexidade de interfaces com os diferentes agentes do desenvolvimento local e regional envolvendo instituições, empresas e associações, com reflexos em estratégias regionais com foco em aglomerações produtivas. Este artigo é fruto de pesquisa e análise da governança do Arranjo Produtivo Local do Leite de Santana do Livramento (RS) a partir de um estudo de caso exploratório-descritivo de natureza qualitativa. Como resultados, verificou-se que o APL do Leite de Santana do Livramento apresenta predominantemente uma governança multilateral horizontal público-privada, ou seja, sua governança configura-se como híbrida, calcada na colaboração, confiança e com investimento em ativos específicos, minimizando as incertezas, indicando a potencialidade e perspectiva de um desenvolvimento sustentável.

Palavras-chave: Governança; Arranjo produtivo local; Desenvolvimento regional.

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1 Introduction

The XXI century decisions on investments are influenced by the search for differentiation, with the objectives of creating unknown and unique markets and processes (Kim & Mauborgne, 2005), increasing competitiveness and intensifying business competition.

Against such competition among social actors, cooperation constitutes representations of behavioral changes of shared processes in supply chains, business clusters, business networks, Local Productive Arrangements (LPA's), and Local Systems of Production and Innovation (SLP & I). Such scenario shows the possibility of increasing competitiveness by cooperating in competitive processes aiming at local and regional development to the companies (Verschoore, 2004; Bleeke & Ernest, 2006; Amato, 2009; Raza-Ullah et al., 2014; Daddi & Iraldo, 2016).

The LPA's formation is the focus of this work. It constitutes an alternative to the micro, small and medium enterprises or small farmers to expand the domain and management of a particular value chain. Thus, the LPA starts governing the actions of every link in the production chain in which each participant plays a role focusing on his competence and benefits from shared activities.

Besides being an alternative for businesses and other local and regional actors, the LPA formation is a determining factor for local economic and social development of the region in which operates (Sampaio & Alves, 2013). The combined action between public and private institutions in these organizations, which focuses on creating synergy around innovative projects, is a consolidation of territories' sustainability based on knowledge production and processes sharing (Neto & Serrano, 2011).

However, the LPA's are constituted by a complex structure derived from the number of actors that interact, and its behavioral characteristics. As a result, the governance of this process requires the existence of an efficient organizational structure of management (Erber, 2008) that provides the group's institutional articulation and leverage both interaction and cooperation. Then, it is supposed to increase the levels of trust and credibility between local and regional actors (Borin, 2006; Gussoni et al., 2015).

Some studies on governance identify and manage the relationships between institutional environment and social actors to increase the relational efficiency by reducing transaction costs, identifying them and mitigating contractual risks (Williamson, 1999, 2012; Oliveira & Santana, 2012). Therefore, the governance structure constitutes a determining factor for the LPA success because when the actions focus on common objectives with integrated actors in cooperative systems, development tends to be positive. Then, the use of governance mechanisms can serve as a tool to obtain

such integration and cooperation (Neumann et al., 2011; Patias et al., 2015).

The present research analyzed the governance structure of Milk Local Productive Arrangement (LPA) in Santana do Livramento (RS), consisting of various institutions, associations and rural producers to develop dairy production in the municipality.

The article is divided into five sections. The first one relates to the introduction, contextualizes the subject and clarifies its goal. The second section comprises literature review, addressing the LPA's and governance issues. The third section presents the methodology used for research development, followed by the fourth one that describes the theoretical and practical triangulation. Finally, the fifth section shows concluding remarks, highlighting managerial and theoretical contributions as well as the paper limitations.

2 Local productive arrangements

Processes of companies' agglomeration like LPA's and SLP & I are not new; however, the use of such methodologies have been more frequent among micro, small and medium enterprises driven by local and regional development strategies.

The perception that business cluster could bring several advantages had its historic landmark from the Marshallian Industrial Districts (Marshall, 1982; Borin, 2006). Currently, these clusters are identified by different nomenclatures such as Agglomeration, Clusters (Porter, 1999), LPA's or Local Systems of Production and Innovation (Cassiolato & Lastres, 1999). These different names appear by the authors' theoretical alignment related to the level of interactions between forming entities of each cluster.

The focus of this paper is the LPA's. They are defined as a group of organizations located in the same place, interconnected by the similarity and/or complementarity characterized by productive specialization, and seeking through integration and cooperation a collective learning at a higher competitive level of their production, marketing or service. The structure is composed of institutions like distribution channels, specialized infrastructure providers, governments and institutions capable of providing knowledge, training, research and technical support (Farah et al., 2009; Afonso et al., 2012).

Economic, political and social actors organize and interrelate through the LPA (Erber, 2008; Araújo, 2009) to seek competitive solutions for their business. Such interrelationship is originally from the new dynamics of global economy that makes institutions to seek for market efficiency with the supply of goods and services through an environment of cooperation (White, 2011). According to Jacometti et al. (2014), the establishment of a local productive arrangement through business clusters looking for development

through information sharing, involves not only geo-economic aspects but also interactions between actors transcending purely economic issues to stimulate inter-organizational relationship environments.

Regarding the process advantages of the LPA structuring, it is worth mentioning some forms of knowledge access and activities sharing since they provide support for the development of cooperative and dynamic actions (Delgado et al., 2014). Another advantage results from the geographical location of the APL as its actions are appropriate to the local context, maximizing the use of available resources in the region (Cassiolato et al., 2008).

The strengthening of interactive capability makes the LPA competitive. The interactivity processes by the development and sharing of innovation environments and collective learning, interaction with suppliers, expertise and workforce training, the creation of information systems and research investments. The approximation to public agencies and encouragement to the creation of new businesses are benefits related to the LPA's that enable the development of entities involved in local and regional processes (Lastres & Cassiolato, 2003; Chen, 2011; Afonso et al., 2012).

Companies and institutions, which characterize through an isolated action, find many advantages in the LPA's that could be difficult to get by working alone (Araújo, 2009). The use of this strategy may give a superior performance to the companies, and it is directly related to the synergy between parties (Neumann et al., 2011) like scale economies, information socialization, lower dependence on other segments, lower costs, greater competitiveness in the market, quality and productivity increase (Okano et al., 2012).

However, it is necessary to have integrated agents that cooperate in a competitive form to achieve the collective efficiency in the LPA (Schmitz, 1995, 1999b; Baio, 2010; White, 2011). Therefore, the presence of a governance structure is a key factor for the success of the LPA since it coordinates agents and provides a greater synergy of actions. Thus, there is a development of parties by respecting the institutional characteristics of each member (Yaqub, 2010; Burns & Roszkowska, 2011; Harvey et al., 2012).

2.1 Governance in Local Productive Arrangements (LPA's)

LPA's strategy characterizes by an intensely collaborative process that requires a significant interaction and maintenance of relations between the participants. Also, due to the complex interaction based on cooperation, it is necessary the presence of a governance structure that provides a greater synergy in LPA actions, seeking to achieve shared and convergent goals between agents (Suzigan et al., 2003; Chabault, 2010).

The LPA with no governance structure could only be a current of market relations. On the other hand, with the use of governance mechanisms, the companies might become significant actors in the value chain, and promote local development (Humphrey & Schmitz, 2000). Thus, the governance structure is relevant to the internal functioning of the LPA, and also, by the arrangement impact in the locality that operates (Chen, 2011).

Mintzberg et al. (2006) addresses that every organized activity demands two main assumptions: labor division and tasks coordination. As the LPA needs an active relational division of tasks, the presence of governance practices assists in managing potential and opportunistic conflicts in relations and cooperation between agents, allowing them to reach the process end with competitive gains (Chen, 2011).

The governance and competitiveness of the LPA associate with the coordination of activities between business actors and relate to the creation of conditions to manage orderly the collective action of several agents. The management of shared processes involves joint decisions about public and private policies on dynamics between institutions, LPA agents and the government (Stoker, 1998; Pereira & Guimarães, 2011).

Building a governance structure in the LPA can be considered as complex since it requires intense interaction and negotiations between the actors involved, and cannot be exercised through a centralized command because it would jeopardize the primary objective success. Tahim & Araújo (2014) reported on the interactions that depending on how the actors relate and interact; they can turn into a complicated structure requiring an efficient governance to achieve the objectives. Bocquet & Mothe (2015) corroborate, in their study, the governance structure importance for LPA development since it is responsible for maintaining efficient interactions between the agents involved. Torre (2006) and Yaqub (2010) demonstrate that governance guided by the collective action in well-structured contractual relations and organizational confidence tends to bring efficiency for the LPA.

The interaction between institutions and social actors generates the need for governance that minimizes the market failures and conflicts resulting from transactions. Such governance has specific attributes. They are a) involved assets specificity (physical, human, locational, infrastructure and dedicated); b) uncertainty; and c) interaction frequency. Assets specificity is the most significant inducer of efficient governance structures because they are durable investments made to support transactions. The uncertainty refers to the lack of information and opportunism that tends to minimize from operations frequency and contracts clarity (Williamson, 2012).

The way to coordinate governance structure varies according to each LPA. The structure of

production, agglomeration type, location, the market in which companies operate (internal or external), the participation of related institutions and support, and the population it needs to reach are factors that influence the structure direction and direct actions implementation (Suzigan et al., 2003; Arnouts et al., 2012).

Researchers have proposed different classifications to describe types and characteristics needed regarding governance. Hilb (2009), for example, proposes four pillars that influence governance: a) interaction between internal and external environment; b) interaction between the strategic board; c) communication between all companies and institutions related and of support, as well as their processes; and d) actions control. Such aspects reinforce the importance of LPA actors to develop joint actions regarding collective efficiency (Suzigan et al., 2007).

Governance is acknowledged as an organization model of various relationships that characterize the actors whether public or private, and it must have the capability to achieve consensus among a set of organizational goals and a common vision of the future. To systematize the methodology, considering the objectives, interests and resources diversity involved in the LPA, the necessary requirements for governance process continuity are transparency (disclosure of rules and procedures to be followed), patrimony (collective sharing of benefits and costs), inclusion (involving all the agents), efficiency (proceedings simplification, less bureaucracy and better delineation of responsibilities) and consensus (interests mediation capacity) (Neto & Serrano, 2011).

In the literature, it is possible to identify at least six distinct and traditional forms of governance. A) Center-radial system: when a large company coordinates operating micro, small and medium companies. B) Vertical bilateral: seeks to minimize power asymmetries through common interests of organizations belonging to different links in the production chain. It relates to the most innovative companies that use this advantage to earn greater benefits. C) Horizontal bilateral: it constitutes from the union of competing companies that seek the making of a product/service. D) Horizontal multilateral:

it occurs when coordination passes by public or private actors seeking closer relations between the actors. E) Vertical multilateral: it develops between institutions and companies belonging to different production chains, but they have a close relationship of exchanges. F) Supported by the State: a more general category in which public/state institutions are located in a particular place and promote the economic development such as the army, universities, agencies and development centers (Markusen, 1995; Schmitz, 1999a; Garcia et al., 2004).

Humphrey & Schmitz (2000) use the term governance to describe agents' coordination processes of a given production system in its various relationship spheres, i.e. between public and private sectors at local, regional or global levels as outlined in Chart 1.

These forms of governance have a significant role in improving the clusters producers' competitiveness. In the case of local governance exercised by the public sector, the actions can be the creation and maintenance of organizations focused on local producers' development, for example, government agencies of development. On the other hand, local private governance highlights the role of associations, trade unions, private development agencies, among others, acting as the local development process catalysts (Suzigan et al., 2007).

Humphrey & Schmitz (2000) identified three basic types of governance, and they called them market governance, networks or quasi-hierarchical and hierarchical. That typology is possible to relate with studies of Williamson (2012) and Jessop (1998), represented in Chart 2.

The governance form division called 'network' is justified because there are relations between partners that could be the actual configuration of a network and others in which there is a clear subordination. Thus, it forms what the authors call as quasi-hierarchical; however, they clearly show that in the productive clusters there is a combination of governance forms, and releasing the name of hybrid governance (Grandori & Soda, 1995; Humphrey & Schmitz, 2000). Some authors even state that, in clusters considered as prosperous, there are often leaders of large companies and collective initiatives working together.

Chart 1. Categories of public-private actions and local-global governance levels.

	Local level	Global level
Private governance	Local business associations. <i>Clusters</i> with the leading company	Global chain conducted by the buyer. Global chain conducted by the producer.
Public governance	Local and regional governmental agencies.	International trade rules. National and supranational rules with global supply patterns.
Públic-private governance	Networks of regional and local policies.	International standards. International NGOs campaigns.

Source: Adapted from Humphrey & Schmitz (2000, p. 5-6).

Chart 2. Types of governance identified by different authors.

Author	Williamson (2012)	Jessop (1998)	Humphrey and Schmitz (2000)
Governance	Market	Anarchical	Market
	Networks	Self-organization	Networks Quasi-hierarchical
	Vertical integration	Hierarchical	Hierarchical

Source: Adapted from Humphrey & Schmitz (2000, p. 2).

These classifications of governances’ structures highlighted by Humphrey & Schmitz (2000) are complemented by studies of Gereffi et al. (2005), in which they address the governance of global value chains. They establish a typology with five basic types of value chain governance. A) Markets: driven by price and low complexity of products/services, in this case, the switching costs for new partners are low for both parties. B) Modular value chains: normally, suppliers in modular value chains make products according to the customer’s specifications. C) Relational value chains: in such networks, there are complex interactions between buyers and sellers that often create mutual dependence and high levels of assets specificity. D) Chains of captive value: in these networks, small suppliers are traditionally dependent of large buyers facing significant switching costs, and they are captives in that situation. E) Hierarchical: this form of governance characterizes by vertical integration.

Some studies also define governance under two points of view: structural and procedural. In the structural governance, the actions of the actors’ group that works in the LPA are involved as well as their influence on the group, according to their possibilities. However, the procedural governance links to the coordination of relations that occur between these actors, addressing mechanisms for cooperation and collaboration involving the decision-making process (Silva et al., 2015a, b).

A different approach was investigated by Casarotto & Pires (2001), and Casarotto (2003) about the Italian local development experience or structuring of a Local Productive System in which the primary focus shifts to the pursuit of life quality in the region rather than exclusively competitiveness. There is a series of regional integration mechanisms with the development agency located at the top to articulate all the other ones. Such agency is made up of public and private institutions working for the region’s development and promoting projects in a production chain or specific sectors of the local life.

Another approach addresses governance under horizontal and vertical perspectives. Thus, the horizontal governance is grounded in the coordination of economic and social relations of the LPA actors. The vertical one portrays the process involving values

chain, linking the participant actors through the relationship with stakeholders (Gereffi & Lee, 2016).

Another central element in the governance analysis is power. It can be: A) monopolized: trying to identify whether some large companies or institutions used that strategy to manage the LPA. B) Distributed according to the core competence of each company: verifying the presence of companies with strategic assets or innovative aspects that used such feature to influence the LPA. C) Distributed evenly throughout the LPA: trying to identify if all actors participated in the decision-making process and had access to all the information. Storper & Harrison (1991) dealt with power relations by using the names core and ring. Core refers to “the situation where power is asymmetrical or some companies have the ability to determine the existence of another one.” Ring establishes that “[...] power is symmetrical and the existence of businesses is not determined by decisions of other companies” (Storper & Harrison, 1991, p. 412).

Therefore, governance exists within arrangements and configures as a significant tool to improve interaction and power relations between companies and other actors, and thus, propel them to a local sustainable development. To notice the governance process in the Local Productive Arrangement of Milk in Santana do Livramento, a research method consistent with the study’s object was constituted as described below.

3 Method

Based on the primary objective of the research to analyze the governance structure of a Milk LPA in Santana do Livramento (RS), it was possible to use the exploratory and descriptive research that aims to provide greater familiarity with the problems, and then, to make it more explicit. It was used a qualitative approach that seeks to find out how and why things happen in a certain way and specificities of the reality or social situation (Fossatti & Luciano, 2008; Cooper & Schindler, 2016). The method can be classified as a case study because it investigates a contemporary event in depth and in its real context, in which the boundaries between phenomenon and context are not clear (Yin, 2015).

Evidence sources were obtained through interviews, direct observation, and secondary sources. There were

thirteen semi-structured interviews with participants in the governance of the Milk LPA that were recorded and transcribed for later analysis. Direct observations were performed through the participation of researchers in the monthly meetings from 2010 to 2012 through the Extension Project “Milk LPA Consolidation of Santana do Livramento” recorded at the *Universidade Federal do Pampa*. During the observations, it was possible to take notes on facts judged as relevant to the research. Secondary sources consisted of access to minutes of meetings of the Milk LPA governance in that period. Various sources of evidence allowed the triangulation of data, contributing to finding empirical standards for analysis.

Data analysis occurred through adaptation to the standard. According to Yin (2015), it occurs by comparing empirical patterns found in the study, with patterns derived from the theory. Therefore, the patterns deriving from the theory are summarized in Chart 3, regarding the factors that characterize governance structures in the LPA's.

Based on sources and evidence, there was a brief account of the LPA implementation describing how the actions began for the milk production chain to the survey period. In such context, it was possible to identify and characterize aspects about the Milk LPA of Santana do Livramento and its governance structure.

4 Description and discussion of results

4.1 Contextualization of the Milk LPA in Santana do Livramento

The milk production in Santana do Livramento was historically considered as small due to the territorial potential. Then, data from the 1996 IBGE agricultural census indicated a production of 7,479 million of liters per year. In the agricultural census of 2006, the production increased to 12,732 million liters per year (IBGE, 2013), and the production chain of milk in

Santana do Livramento began to get organized with incentives of the City Hall and through a multidisciplinary team of work of the Planning Municipal Secretary. The goal was to develop a technical project for the production chain. However, the first transfers of financial resources were conducted after three years, which limited the actions planned.

Concomitantly, other institutions were already operating in the dairy sector of the municipality, supported by other regional development strategies and each one focused on their activities. In 2007, the *Banco do Brasil* was performing a diagnosis for the Regional Sustainable Development Strategy (DRS) in partnership with the *Empresa de Assistência Técnica e Extensão Rural (Emater/RS-Ascar)* and the Secretary of Agriculture, Livestock and Supply of the municipality of Santana do Livramento (Smapa). Thus, there was a decision to search for alternatives to the milk production chain.

In the same period, the *Cooperativa dos Assentados* of Santana do Livramento (*Coperforte*), an organization of rural settlements developed by the State in the 80s, requested advisory services for their planning to the *Universidade Federal do Pampa (Unipampa)*. From that advisory and the perception of a development opportunity of milk supply chain, in early 2008, there was an invitation from *Unipampa* to more than 30 institutions to form a working group in the dairy sector. Therefore, several institutions joined forces to meet the milk producers' needs in the municipality, to develop the sector and provide higher productivity gains and product quality.

Some meetings occurred, during 2008, with the aim of raising awareness and structure first actions to develop the dairy sector in the municipality. Fifteen out of thirty institutions initially invited remained acting jointly. From these meetings and the perceived lack of information about the milk production chain in Santana do Livramento, the group decided to survey, in place, all the rural producers of the municipality.

Chart 3. Factors that characterize governance structures in the LPA's.

Factors	Variations
Coordination Markusen (1995); Schmitz (1999a); Garcia et al. (2004)	Central-radial; vertical bilateral, horizontal bilateral, horizontal multilateral, vertical multilateral and supported by the state.
Governance Suzigan et al. (2007); Hilb (2009); Pereira & Guimarães (2011); Chen (2011); Bocquet & Mothe (2015)	Interaction between external and internal environments, interaction on the board, interaction between companies and institutions and control of actions.
Power Storper & Harrison (1991)	Monopolized, distributed by competencies and evenly distributed.
Specific assets Williamson (1999, 2012)	Physical, humans, dedicated and of infrastructure.

Source: Elaborated by the authors.

Then, it began in the second half of 2008, the milk production chain diagnosis, and through a questionnaire, there was an intent to interview all dairy farmers in the municipality (there were around 550 producers). The activity had an estimated completion time for the second half of 2009, but due to lack of resources such as transportation and challenging access to the properties only 150 producers were interviewed.

In May 2009, and with the collected partial data, it was possible to organize the seminar “*Rumos da Bacia leiteira*”, bringing together several producers to train them through technical workshops and partial results presentation of dairy production. After that, there was a proposal to organize a Milk LPA since the institutions already working together formed a Management Committee to follow up the project. The committee’s composition involved representatives of nine institutions, namely: *Smapa, Emater/RS-Ascar, Coperforte, Unipampa, Associação dos Pequenos Produtores de Leite de Santana do Livramento (Applesa), Fundação Estadual de Pesquisa Agropecuária (Fepagro), Banco do Brasil, Núcleo Santanense de Criadores de Gado Leiteiro* and *Cooperativa de Técnicos Agropecuários (Coptec)*.

With the support of data collected in the diagnosis and considerations of the seminar’s participants, it was possible to hold, at the end of 2009, a meeting involving all the milk LPA entities, with the objective of developing a strategic planning. The meeting defined the organizational principles of the Milk LPA of Santana do Livramento including the mission: “Making every sector involved competitive” and the vision: “Achieving prominence in the State of RS regarding collective organization and sustainable production.”

There was a list of strengths and weaknesses, threats and opportunities to set the LPA aims. The work reached 18 goals accompanied by action plans executed in 2010. Some actions were highlighted, among them, the “*Programa Mais Leite*” was held between December 2009 and October 2010. It was a consistent formation of a producers group to make them a reference, and also, there was the “*II Seminário Rumos da Bacia Leiteira*,” on June 24 and 25 2010.

During the year 2010, the Milk LPA integrated some institutions: a small local industry of milk processing named *Skylab, the Cooperativa Sul-Rio Grandense de Laticínios Ltda (Cosulati)*, which processes the greatest amount of milk produced in the municipality, the *Empresa Brasileira de Pesquisa Agropecuária (Embrapa)*, and the *Associação dos Pequenos Produtores de Leite da APA do Ibirapuitã (APPI)*. At the end of that year, there was a meeting to review the planning actions and rearrange them for 2011. The strategies that were already underway continued and others were added.

One of the actions aggregated to the planning was the search for resources for a particular agricultural patrol for dairy farming, and it was contemplated with funds from the *Consulta Popular do Governo Estadual*. Besides, it was added as a need for producers a community insemination program developed through insemination courses for farmers, and it was also signed agreements with some companies to develop such action. Along with these actions, educational, research and extension institutions as *Unipampa, Uergs, Fepagro* and *Embrapa* continued improving projects regarding dairy farming, which resulted in a series of course conclusion papers and internships reports.

At the end of 2011, the strategic plan was revised, and the guiding principles were redefined as collective action, competitive production, efforts optimization and sector organization. The values assumed were non-partisan actions and programs, commitment to the agreements considered, reciprocity, trust, sustainable development and ethics.

At the beginning of 2012 and continuing the review of strategic planning, the principles were endorsed and changed Mission and Vision. The mission was defined as “Being a catalyst entity for actions linked to the productive milk chain of Santana do Livramento to promote its growth and development.” The vision became: “Achieving prominence in the state of RS regarding collective organization, social inclusion and sustainable production.”

Concurrently, the Milk LPA sought national recognition through the Ministry of Development, Industry and Foreign Trade (MDIC). Such recognition came in March 2012 through the State Center for Transversal Actions (NEAT). Thus, after a professional opinion of the NEAT, the Milk LPA of Santana do Livramento was recognized as a Potential Arrangement, and in 2013, it was effectively recognized as LPA by the state government of RS.

The 5th Seminar “*Rumos da Bacia Leiteira of Santana do Livramento*” was held on October 3 and 4 2013, and traditionally, it included lectures stimulating producers training times and experiences exchange. During 2013, Applesa obtained recognition as a Cooperative and started to be called as the Milk Producers Cooperative of Santana do Livramento (Cooplesa). The agricultural patrol that was in a bidding process was acquired and delivered to the rural producers for food production of the dairy herd.

Addressing one of the Milk LPA demands, the municipality received a vehicle and equipment from the of the *Programa Estadual de Incremento da Qualidade Genética da Pecuária de Carne e de Leite – Dissemina* for dairy cattle insemination. In 2013, it was also announced by *Coperforte* the construction of a milk processing industry in

Santana do Livramento, with a planned investment of 10 million reais.

Currently, the Milk LPA is composed of 13 institutions: *Unipampa, Uergs, Emater/RS-Ascar, Embrapa, Skylab, Smapa, Coptec, Coperforte, Cosulati, Cooplesa, Banco do Brasil, Secretaria de Desenvolvimento Rural, Pesca e Cooperativismo and Associação dos criadores de gado leiteiro e produtores de leite de Santana do Livramento*. For the coming years, the institutions planned actions to continue with the promotion of annual seminars on the future of dairy farming, formalizing the cooperation agreement, seeking resources for another agricultural patrol, local lectures and fairs participation, putting into practice the disclosure plan of Milk LPA, looking along with the Bank of Brazil funds to boost the dairy sector and building a referral network in the municipality.

The dairy community has evolved considerably compared to the original situation in which appeared disorganized and with no joint actions. Regarding production, the survey performed with the producers points out 20 million liters per year of milk production, in Santana do Livramento. Until the research period, it was possible to verify that the Milk LPA leads the dairy region of the municipality for economic, social and environmental development due to actions of cooperation and trust between institutions and milk farmers.

4.2 Governance Structure of Milk LPA in Santana do Livramento

The governance structure found in the Milk Local Productive Arrangement of Santana do Livramento milk consists of institutions that have joined forces to develop the production chain of milk as it was highlighted in the previous section.

Data obtained from different sources of evidence were analyzed in a group of five distinct factors to identify the form of governance used in the LPA and prominent types. A) Coordination: identifying what form of coordination is used in the LPA. B) Governance: highlighting the elements found within the LPA that influenced the governance constitution. C) Power relationships: checking how the power issue is perceived among the LPA actors, and D) assets specificity.

It was tried to identify what type of coordination is employed in the LPA through five variables, each of

which relates to a type of governance as outlined in the literature review by considering the **coordination** factor. They are 1) center-radial system; 2) bilateral vertical; 3) bilateral horizontal; 4) multilateral horizontal; 5) multilateral vertical supported by the State (Markusen, 1995; Schmitz, 1999a; Garcia et al., 2004) (Chart 4).

Interviewees manifestations, document analysis and direct observations pointed out that the type of governance adopted is the **multilateral horizontal** that according to Schmitz (1999a), it happens when the coordination passes by public or private actors seeking closer relations between the agents. In other words, the Milk LPA is run by a governance composed of several public and private institutions that exclusively aim at the development of the municipality dairy basin. With the performance of such institutions, the successful local development highlighted by Humphrey & Schmitz (2000), Casarotto & Pires (2001), Casarotto (2003) and Chen (2011) is more likely to be achieved, which seems to be confirmed with the Milk LPA trajectory of Santana do Livramento.

However, Humphrey & Schmitz (2000) make it clear that in productive clusters are usually found the combination of governance forms, the so-called **hybrid governance**. It is not different in the Milk LPA of Santana do Livramento, and the public agencies role, especially *Unipampa, Smapa and Emater-RS/Ascar*, is essential for the governance to remain in operation. Therefore, at certain times, there seems to be a governance backed by the state that provides support to execute projects.

Then, some factors influencing the Milk LPA **governance** were identified, and they were adapted to the study from the conception of Hilb (2009). The variables analyzed were a) interaction between internal and external environment; b) interaction between the strategic board (in this case, it refers to the coordination group); c) interaction between companies (in this particular case, milk producers) and institutions; and d) actions control (Chart 5).

Regarding the variable **interaction between internal and external environment**, it is worth noting that there is a satisfactory level of adaptation of the Milk LPA to the local culture and environment, and also with the activities carried out along with the community. The confirmation of such fact came through testimonies listed in the five editions of the

Chart 4. Coordination variable.

Factor	Type Found	Evidences
Coordination	Multilateral horizontal.	Public agents (Unipampa, Smapa and Emater-RS/Ascar) and private ones (Cooperatives and Producers Associations) in the coordination group.

Source: Elaborated by the authors.

Chart 5. Governance variable.

Factor	Variations	Evidences
Governance factor	Interaction between internal and external environment; Board interaction; Interaction between companies and institutions; Actions control.	Annual seminars with the community; Regular meetings, mutual trust; Little interaction with external institutions to the LPA; Only planning meetings and evaluation.

Source: Elaborated by the authors.

“Seminário Rumos da Bacia Leiteira de Santana do Livramento,” which included the participation of a broad public. Then, several activities contributed to the LPA interaction with its external environment, helping to disclose it and giving legitimacy before the local community.

Regarding the variable **interaction in the strategic board**, it was found that there is a right level of interaction between members of the Milk LPA governance. The participants of that group work in a corporate perspective to achieve the LPA greater efficiency given by monthly meetings, annual meetings of planning review, the collaboration of all entities to carry out the annual seminar, and other actions that were performed throughout the Milk LPA existence.

The variable **interaction between companies and institutions** indicated that the relationship between milk producers and governance needs improvement in the LPA, regarding aspects of a greater involvement of the parties, transparent sharing of information and decision-making together. Moreover, in a survey conducted by the Milk LPA, it was found that the sample of milk producers is composed of 60.84% of people with the primary school completed and 69.18% living with up to two minimum wages, i.e. poor and with low education people. Then, it is necessary to develop practices directed to that audience.

The essential element supporting the Milk LPA is the frequency of these interactions. Meetings among governance members are monthly, and there is an annual event where all producers and organizations are invited to participate. Such frequency of formal interactions with minutes and reports allow monitoring the activities and entities commitment towards projects and actions. The result is the minimization of uncertainty because there is information exchange and opportunism is virtually non-existent. It is worth highlighting that there is no formal agreement between the Milk LPA members. Then, trust among members is critical to stay.

However, some companies, cooperatives or associations use the Milk LPA to earn higher benefits, featuring opportunism (Williamson, 2012). A particular case happened when an entity joined the Milk LPA, and then, it benefited with a cooler tank, remaining an extended period without participating in the meetings and, finally, it was separated from the LPA.

The last variable analyzed refers to **actions control**. The topic is being worked in a rudimentary manner, demonstrating that there are possibilities of adjustment, for example, the Milk LPA performance evaluation over time. There were some attempts to implement controls, such as a “gant graphic” to track projects; however, it was not possible due to the lack of an Executive Secretariat. Then, the process accumulates, and the activities are assessed at the end of each year.

The next factor examined connects to the existing **power relations** among the Milk LPA actors. The factor is divided into three related variables to facilitate the analysis instrumentalization. A) Monopolized power identifies whether some large companies or institutions used the strategy to manage the LPA. B) Power distributed according to the necessary competence of each company verifying the presence of businesses with strategic assets or innovative aspects used to influence the LPA. C) Power distributed evenly throughout the APL trying to identify if all the actors participated in the decision-making process and had access to all the information. It was noted that in the group of organizations that make up the LPA governance, decisions are made collectively so that the power factor seems to be evenly distributed to all members of the LPA. It contributes to the efficient management in a complex structure (Storper & Harrison, 1991) (Chart 6).

Finally, the factor **assets specificity** regarding governance was analyzed (Williamson, 1999, 2012). In the milk LPA, it manifests by physical, human, locational, dedicated and infrastructure characteristics. About physical features, there are more than 5 million reais in loans to the farmers for purchasing durable goods such as mechanized milking, cooling tanks and facilities improvement given by the Bank of Brazil, in the last five years. *Cosulati* also expanded the milk receiving station in Santana do Livramento, which also represents a commitment to the productive sector. *Coperforte’s* recent announcement of a 10 million reais investment in a milk processing industry is also a possibility of strengthening the production chain (Chart 7).

Human specificities refer to the workforce qualification regarding the last seven years, with specific courses such as the *Programa Mais Leite*, annual seminar lectures and field days sponsored by *Emater-RS/Ascar*. However, there is a warning about

Chart 6. Power variable.

Factor	Variation found	Evidences
Power	Distributed evenly.	Decisions taken collectively in the LPA management group.

Source: Elaborated by the authors.

Chart 7. Assets specificity variable.

Factor	Variation	Evidences
Assets specificity	Physical; Humans; Locational and Infrastructure; Dedicated.	Financing sources for durable goods; Activities for producers' qualification; Lack of investments; Investments to meet the sector standards.

Source: Elaborated by the authors.

the significant internal distances in the municipality. Thus, the process can be improved as there are still producers who did not get any qualification at all. The locational and infrastructure specificity is one of the main bottlenecks in the Milk LPA because the municipality of Santana do Livramento has more than three thousand kilometers of rural roads that most of the times are in poor conditions, hampering the milk collection and inputs arrival. Dedicated specificity refers to investments made by producers and industries to meet the regulatory norms.

The studies of Humphrey & Schmitz (2000) and Gereffi et al. (2005) address the global value chains in which market relations and competition are prevalent in the presence of large companies. These elements can be related mildly to the Milk LPA governance structure because there is no presence of a large company, in the region. Although *Cosulati* is widely responsible for the current milk collection produced in Santana do Livramento does not exercise its power because it subjects along with rural producers to the market rules, in particular, pricing defined by the market as milk is considered a commodity. Therefore, the governance structure more closely to the authors' studies and present in the Milk LPA is a network or relational value chain, despite being at the market governance mercy or captive from value chain as it depends on price and demand.

Finally, the Milk LPA governance can also be related to the Italian experience highlighted by Casarotto & Pires (2001) and Casarotto (2003). The form of governance established by the Milk LPA approaches the format of development agency because articulates social, public and private agents involved in a segment. In this case, the dairy segment, and it seeks to maximize actions aiming at the development of the region expressed in the LPA vision and mission.

5 Final considerations

The primary objective of the paper was to analyze the Milk LPA governance structure of Santana do Livramento in light of a consistent and current

theoretical framework, with the possibility of expanding the understanding and produce relevant considerations about it. It is worth mentioning that the theoretical basis for governance is quite extensive, and it is not possible to develop such issue entirely, in the present article. Therefore, it is a case study in construction with the possibility of further analyses based on other references.

Initially, it is possible to highlight the development strategy of the Milk LPA in Santana do Livramento grounded in the integration of different social actors and collective construction. That is something unusual in a region that throughout its history has deteriorated economically, and there was a lack of cooperative initiatives. A significant and controversial issue from the ideological point of view was the installation, from the 1980's, of rural settlements that brought on a larger scale a population with regional differences based on small properties and productive diversification. That was just the opposite in relation to Santana do Livramento, where there were extensive livestock and large properties.

Milk production from the installation of settlements and establishment of *Coperforte* brought encouragement for settled families, and consequently, a monthly family income that was immediately perceived by the city trade. It encouraged even non-settled producers to broaden milk production as the case of members of *Cooplesa* and the Association of dairy farmers and milk producers of Santana do Livramento. The ideological differences present at the beginning of the process did not allow a faster milk production development. However, when the primary differences were overcome it was possible to realize that there is harmony among producers, organizations, and government about the importance of milk production chain, in Santana Livramento.

Moreover, the study found that the Milk LPA of Santana do Livramento (RS) was the result of such historical process and market imperfections, predominating the horizontal multilateral governance (Schmitz, 1999a; Garcia et al., 2004) or public-private governance (Humphrey & Schmitz, 2000), but

also appeared the hybrid governance in certain circumstances (Grandori & Soda, 1995; Humphrey & Schmitz, 2000).

Therefore, it is not possible to focus on a single model of governance as it is noticeable in most global value chains. The particularity of this LPA is the collaborative and strong constitution by public and private entities committed to the development of dairy basin in the municipality.

The significant commitment of specific assets by entities and rural producers tends to strengthen the production chain, making it more integrated and preventing it from opportunistic actions and uncertainties that could affect its development abruptly. The recent investment announcement made by *Coperforte* will change the production chain structure considerably because *Cosulati*, which is today the largest recipient of milk in the municipality, may lose the market since the biggest production belongs to the settlements. Nevertheless, the production has increased over the last 12 years 6.35% per year, on average. It indicates that there will be production for both *Coperforte* and *Cosulati*.

It is worth indicating to the government the need for qualification of locational and infrastructure specific assets, with better access roads, investments in alternative means of production transport (railroad), and tax cuts to minimize travel costs (taking into consideration that Santana do Livramento is 500 km away from the largest center of state consumption).

The human assets specificity is another element that deserves attention in the Milk LPA because there are still producers without the necessary qualification and professionalism to the production of quality milk. The qualification of people also provides production diversification, benefiting the product in nature and producing cheeses, pastries, yogurts and other derivatives. Likewise, it is worth noting that Santana do Livramento faces the competition from a neighboring country, Uruguay, which is recognized for the quality of cheese and sweet milk, and therefore, it is an excellent example to observe.

Concerning the aspects that influence governance structure in the Milk LPA of Santana Livramento, it was possible to observe that the interaction between internal and external environment and the interaction with governance presents satisfactory levels. However, regarding the interaction between companies and institutions and control means of actions such as assessments and risk management, it is necessary more attention and to develop the most fruitful measures in these areas.

Finally, it is worth highlighting the research limitations, among them, the fact it is a case study, but minimized by the depth that does not allow making inferences about the LPA's population. Future research on the topic proposed here are fruitful

both academically and practically to develop the LPA's and public policies as follows. A) The light of institutional theory makes a longitudinal study of this and other LPA's that already have a time of the activity that could identify features and innovations regarding management. B) Study on cooperation and trust relationships between social actors. C) Study of relations between regional development, public policy and LPA's.

The benefits and challenges pointed out in this paper about LPA's deserve attention from the university, business sector and government articulated around a governance to understand and strengthen regional production systems, which are primarily responsible for economic performance, advancing from consolidation to innovation and qualified insertion in the markets.

References

- Afonso, R. A., Neves, M. F., & Scare, R. F. (2012). Desafios em planejamento estratégico de APLS. In R. F. Scare, R. A. Afonso & J. C. Lima (Eds.), *Planejamento estratégico em arranjos produtivos locais*. Curitiba: CRV.
- Amato, A. (2009). *Gestão de sistemas locais de produção e inovação (clusters/APLs): conceitos, princípios e aplicações, sistemas de indicadores de benchmarkings, análises e discussões de casos*. São Paulo: Atlas.
- Araújo, M. J. (2009). *Fundamentos de agronegócios*. São Paulo: Atlas.
- Arnouts, R., van der Zouwen, M., & Arts, B. (2012). Analysing governance modes and shifts: governance arrangements in Dutch nature policy. *Forest Policy and Economics*, 16, 43-50. <http://dx.doi.org/10.1016/j.forpol.2011.04.001>.
- Baio, A. (2010). Show me the way: inclination towards governance attributes in the artisanal fisheries of Sierra Leone. *Fisheries Research*, 102(3), 311-322. <http://dx.doi.org/10.1016/j.fishres.2010.01.003>.
- Bleeke, J., & Ernest, D. (2006). Colaborando para competir. In H. Mintzberg, J. Lampel, J. B. Quinn & S. Ghoshal. *O processo da estratégia: conceitos, contextos e casos selecionados* (4. ed.). Porto Alegre: Bookman.
- Bocquet, R., & Mothe, C. (2015). Can a governance structure foster cluster ambidexterity through knowledge management? An empirical study of two French SME clusters. *Knowledge Management Research and Practice*, 13(3), 329-343. <http://dx.doi.org/10.1057/kmmp.2013.53>.
- Borin, E. C. P. (2006). *O Sebrae e os arranjos produtivos locais: o caso de Nova Friburgo/RJ* (Tese de doutorado). Programa de Pós-graduação em Planejamento Urbano e Regional, Universidade Federal do Rio de Janeiro, Rio de Janeiro. Recuperado em 21 de agosto de 2012, de www.ceap.br/material/MAT23042013210525.pdf
- Burns, T. R., & Roszkowska, E. (2011). Legitimacy versus effectiveness: procedural governance integrating expertise and social acceptance of collective decisions.

- International Journal of Regulation and Governance*, 11(1), 1-23. <http://dx.doi.org/10.3233/IJR-120098>.
- Casarotto, N., Fo. (2003). Instrumentos de integração e governança em aglomerações competitivas. In *Anais do Colóquio Internacional de Desenvolvimento Local*. Campo Grande: Universidade Católica Dom Bosco.
- Casarotto, N., Fo., & Pires, L. H. (2001). *Redes de pequenas e médias empresas e desenvolvimento local: estratégias para a conquista da competitividade global com base na experiência italiana* (2. ed.). São Paulo: Atlas.
- Cassiolato, J. E., & Lastres, H. M. (1999). *Globalização e inovação localizada: experiências de sistemas locais no Mercosul*. Brasília: IBICT/MCT.
- Cassiolato, J. E., Lastres, H. M., & Stallivieri, F. (2008). Introdução: políticas estaduais e mobilização de atores políticos em arranjos produtivos e inovativos locais. In J. E. Cassiolato, H. M. Lastres, & F. Stallivieri (Eds.), *Arranjos produtivos locais: uma alternativa para o desenvolvimento: experiências políticas*. Rio de Janeiro: E-papers.
- Chabault, D. (2010). Gouvernance et trajectoire des pôles de compétitivité. *Revue Management & Avenir*, 36(6), 130-151. <http://dx.doi.org/10.3917/mav.036.0130>.
- Chen, L. C. (2011). The governance and evolution of local production networks in a cluster: the case of Taiwan's machine tool industry. *GeoJournal*, 76(6), 605-622. <http://dx.doi.org/10.1007/s10708-009-9317-2>.
- Cooper, D. R., & Schindler, P. S. (2016). *Métodos de pesquisa em administração* (12. ed.). Porto Alegre: AMGH.
- Daddi, T., & Iraldo, F. (2016). The effectiveness of cluster approach to improve environmental corporate performance in an industrial district of SMEs: a case study. *International Journal of Sustainable Development and World Ecology*, 23(2), 163-173. <http://dx.doi.org/10.1080/13504509.2015.1106988>.
- Delgado, M., Porter, M. E., & Stern, S. (2014). Clusters, convergence, and economic performance. *Research Policy*, 43(10), 1785-1799. <http://dx.doi.org/10.1016/j.respol.2014.05.007>.
- Erber, F. S. (2008). Eficiência coletiva em arranjos produtivos locais industriais: comentando o conceito. *Nova Economia*, 18(1), 11-32. <http://dx.doi.org/10.1590/S0103-63512008000100001>.
- Farah, O. E., Camargo, S. H. C. R. V., & Campanário, M. A. (2009). Arranjos produtivos locais: uma contribuição as micro e pequenas empresas na cadeia produtiva canavieira de Piracicaba. *Revista de Administração da UNIMEP*, 7(1), 61-84. <http://dx.doi.org/10.15600/1679-5350/rau.v7n1p61-84>.
- Fossatti, N. C., & Luciano, E. M. (2008). *Prática profissional em administração: ciência, método e técnicas*. Porto Alegre: Sulina.
- Garcia, R., Motta, F. G., & Amato, J., No. (2004). Uma análise das características da estrutura de governança em sistemas locais de produção e suas relações com a cadeia global. *Gestão & Produção*, 11(3), 343-354. <http://dx.doi.org/10.1590/S0104-530X2004000300008>.
- Gereffi, G., & Lee, J. (2016). Economic and social upgrading in global value chains and industrial clusters: why governance matters. *Journal of Business Ethics*, 133(1), 25-38. <http://dx.doi.org/10.1007/s10551-014-2373-7>.
- Gereffi, G., Humphrey, J., & Sturgeon, T. (2005). The governance of global value chains. *Review of International Political Economy*, 12(1), 78-104. <http://dx.doi.org/10.1080/09692290500049805>.
- Grandori, A., & Soda, G. (1995). Inter-firm networks: antecedents, mechanisms and forms. *Organization Studies*, 16(2), 183-214. <http://dx.doi.org/10.1177/017084069501600201>.
- Gussoni, W. M. S., Weise, A. D., & Medeiros, F. S. B. (2015). Cooperação e governança nos arranjos produtivos locais: o caso das empresas de software no Estado do Paraná. *Desenvolvimento em Questão*, 13(29), 125-157. <http://dx.doi.org/10.21527/2237-6453.2015.29.125-157>.
- Harvey, D. C., Hawkins, H., & Thomas, N. J. (2012). Thinking creative clusters beyond the city: people, places and networks. *Geoforum*, 43(3), 529-539. <http://dx.doi.org/10.1016/j.geoforum.2011.11.010>.
- Hilb, M. (2009). *A nova governança corporativa: ferramentas bem-sucedidas para conselho de administração*. São Paulo: Saint Paul Editora.
- Humphrey, J., & Schmitz, H. (2000). *Governance and upgrading in global value chains: paper for the Bellagio Value Chain Workshop*. England: Institute of Development Studies. Recuperado em 07 de julho de 2013, de <https://www.ids.ac.uk/ids/global/pdfs/jhhs%20Bellagio.pdf>
- Instituto Brasileiro de Geografia e Estatística – IBGE. (2013). *Censos agropecuários 1996 e 2006*. Brasília. Recuperado em 15 de julho de 2013, de <http://www.ibge.gov.br/home/estatistica/economia/agropecuaria/censoagro/default.shtm>
- Jacometti, M., Gonçalves, S. A., & Castro, M. (2014). Institutional work e conhecimento em redes interorganizacionais: uma proposta para investigar APLs. *Revista de Administração da Mackenzie*, 15(6), 17-47. <http://dx.doi.org/10.1590/1678-69712014/administracao.v15n6p17-47>.
- Jessop, B. (1998). The rise of governance and the risks of failure: the case of economic development. *International Social Science Journal*, 50(155), 29-45. <http://dx.doi.org/10.1111/1468-2451.00107>.
- Kim, W. C., & Mauborgne, R. (2005). *Blue ocean strategy: how to create uncontested market space and make the competition irrelevant*. Boston: Harvard Business School Press.

- Lastres, H. M. M., & Cassiolato, J. E. (2003). Novas políticas na era do conhecimento: o foco em arranjos produtivos e inovativos locais. *Parcerias Estratégicas*, 8(17), 5-29. Recuperado em 08 de setembro de 2013, de http://seer.cgee.org.br/index.php/parcerias_estrategicas/article/viewFile/238/232
- Markusen, A. (1995). Áreas de atração de investimentos em um espaço econômico cambiante: uma tipologia de distritos industriais. *Nova Economia*, 5(2), 9-44. Recuperado em 31 de julho de 2013, de <http://revistas.face.ufmg.br/index.php/novaeconomia/article/view/2275/1216>
- Marshall, A. (1982). *Princípios de economia*. São Paulo: Abril Cultural.
- Mintzberg, H., Lampel, J., Quinn, J. B., & Ghoshal, S. (2006). *O processo da estratégia: conceitos, contextos e casos selecionados* (L. Rocha, Trad., 4. ed.). Porto Alegre: Bookman.
- Neto, P., & Serrano, M. M. (2011). Clusters, governance and sustainability. *Journal of Modern Accounting and Auditing*, 7(5), 509-523. Recuperado em 13 de setembro de 2013, de <http://hdl.handle.net/10174/3125>
- Neumann, L., Hexsel, A., & Balestrin, A. (2011). Desafios à cooperação em aglomerados produtivos: um estudo de caso no segmento de malhas do sul do Brasil. *Revista de Administração e Contabilidade da Unisinos*, 8(3), 220-230. <http://dx.doi.org/10.4013/base.2011.83.02>
- Okano, M. T., Vendrametto, O., & Santos, O. S. (2012). How the organization of milk producers in a network of companies improved the productivity. *Journal of Agricultural Science and Technology*, 8(2), 228-236.
- Oliveira, C. M., & Santana, A. C. (2012). A governança no arranjo produtivo de grãos de Santarém e Belterra, Estado do Pará: uma análise a partir do grão soja. *Revista de Economia e Sociologia Rural*, 50(4), 683-704. <http://dx.doi.org/10.1590/S0103-20032012000400006>
- Patias, T. Z., De Marco, D., Wittmann, M. L., & Reis Xavier, T. (2015). Uma Análise do Capital Social no Arranjo Produtivo Local do Leite de Santana do Livramento. *Desenvolvimento em Questão*, 13(30), 175-202. <http://dx.doi.org/10.21527/2237-6453.2015.30.175-202>
- Pereira, C. C. P., & Guimarães, L. M. (2011). Trajetória e governança do arranjo produtivo local de gemas e artefatos de pedras do Vale do Jequitinhonha e Mucuri em Minas Gerais: uma análise preliminar. In Centro de Tecnologia Mineral – CETEM. *Recursos minerais & sustentabilidade territorial: arranjos produtivos locais* (Vol. 2, pp. 89-114). Rio de Janeiro: CETEM/MCTI.
- Porter, M. (1999). *Competição: estratégias competitivas essenciais*. Rio de Janeiro: Campus.
- Raza-Ullah, T., Bengtsson, M., & Kock, S. (2014). The co-competition paradox and tension in co-competition at multiple levels. *Industrial Marketing Management*, 43(2), 189-198. <http://dx.doi.org/10.1016/j.indmarman.2013.11.001>
- Sampaio, C. A. C., & Alves, F. K. (2013). Arranjo socioproductivo de base comunitária (APL.com): um projeto piloto na comunidade do entorno da microbacia do Rio Sagrado (Morretes/PR). *Organizações Rurais & Agroindustriais*, 15(1), 30-42. Recuperado em 08 de julho de 2015, de <http://revista.dae.ufla.br/index.php/ora/article/view/645/390>
- Schmitz, H. (1995). Collective efficiency: growth path for small-scale industry. *The Journal of Development Studies*, 31(4), 529-566. <http://dx.doi.org/10.1080/00220389508422377>
- Schmitz, H. (1999a). Global competition and local cooperation: success and failure in the Sinos Valley, Brazil. *World Development*, 27(9), 1627-1650. [http://dx.doi.org/10.1016/S0305-750X\(99\)00075-3](http://dx.doi.org/10.1016/S0305-750X(99)00075-3)
- Schmitz, H. (1999b). Collective efficiency and increasing returns. *Cambridge Journal of Economics*, 23(4), 465-483. <http://dx.doi.org/10.1093/cje/23.4.465>
- Silva, C. C., Tavares, B., Silva, J. N., & Mesquita, D. L. (2015a). Governança estrutural e processual no arranjo produtivo local de software de Belo Horizonte – Minas Gerais. *Revista de Desenvolvimento Econômico*, 17(31), 151-164. Recuperado em 21 de dezembro de 2015, de <http://www.revistas.unifacs.br/index.php/rde/article/view/3460/2706>
- Silva, C. C., Tavares, B., & Silva, J. N. (2015b). Governança em APL: ações coletivas, cooperação e coordenação em um APL de software. *Revista Ibero-Americana de Estratégia*, 14(2), 105-120. <http://dx.doi.org/10.5585/ijism.v14i2.2078>
- Stoker, G. (1998). Governance as theory: five propositions. *International Social Science Journal*, 50(1), 17-28. <http://dx.doi.org/10.1111/1468-2451.00106>
- Storper, M., & Harrison, B. (1991). Flexibility, hierarchy and regional developments: the changing structure of industrial production systems and their forms of governance in the 1990s. *Research Policy*, 20(5), 407-422. [http://dx.doi.org/10.1016/0048-7333\(91\)90066-Y](http://dx.doi.org/10.1016/0048-7333(91)90066-Y)
- Suzigan, W., Garcia, R., & Furtado, J. (2003). Governança de sistemas de MPMEs em clusters industriais. In H. Lastres, J. E. Cassiolato & M. L. Maciel (Eds.), *Pequena empresa: cooperação e desenvolvimento*. Rio de Janeiro: Relume Dumará.
- Suzigan, W., Garcia, R., & Furtado, J. (2007). Estruturas de governança em arranjos ou sistemas locais de produção. *Gestão & Produção*, 14(2), 425-439. <http://dx.doi.org/10.1590/S0104-530X2007000200017>
- Tahim, E. F., & Araújo, I. F., Jr. (2014). A carcicultura do nordeste brasileiro e sua inserção em cadeias globais de produção: foco nos APLs do Ceará. *Revista de Economia e Sociologia Rural*, 52(3), 567-586. <http://dx.doi.org/10.1590/S0103-20032014000300009>
- Torre, A. (2006). Collective action, governance structure and organizational trust in localized systems of production: the case of the AOC organization of small producers. *Entrepreneurship & Regional Development*, 18(1), 55-72. <http://dx.doi.org/10.1080/08985620500467557>

- Verschoore, J. R. (2004). *Redes de cooperação: uma nova organização de pequenas e médias empresas no Rio Grande do Sul*. Porto Alegre: FEE.
- White, W. R. (2011). 50 years of productive partnership. *The OECD Observer. Organisation for Economic Co-Operation and Development*, 284, 44-45.
- Williamson, O. E. (1999). *The mechanisms of governance*. New York: Oxford University Press.
- Williamson, O. E. (2012). *As instituições econômicas do capitalismo*. São Paulo: Pezco Editora.
- Yaqub, M. Z. (2010). Relational governance as an antecedent to successful inter-firm relationships. *European Journal of Economics, Finance and Administrative Sciences*, 20, 106-115.
- Yin, R. K. (2015). *Estudo de caso: planejamento e métodos* (5. ed.). Porto Alegre: Bookman.