Artículos

Institutional Change as an Endogenous Development Factor: An Analysis of Livestock Systems in Southern Brazil*

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Abstract:

This study aimed to analyze institutional change as an endogenous development factor in livestock systems in southern Brazil. To this end, a qualitative approach was used, using semi-structured interviews with experts and livestock farmers. The data collected was analyzed using the content analysis technique. The results showed that positive institutional changes are taking place in the production choices made by cattle farmers, increasing their competitiveness and economic representativeness in the region. However, organizational and behavioral aspects still hinder the region's development in an endogenous way, aspects that are still very much related to the region's economic formation, based on extensive livestock farming and marked by the isolation of the actors in the production chain. In the end, proposing a theoretical-empirical

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model for verifying the economic, organizational and behavioral institutions in southern Brazil's family and non-family livestock systems and their respective change processes was possible.
Keywords: :Rural development, Institutional Economics, Institutions, Beef Cattle Farming.

El cambio institucional como factor endógeno del desarrollo: análisis de los sistemas ganaderos del sur de Brasil

Resumen:

Este estudio se propuso analizar el cambio institucional como factor de desarrollo endógeno en los sistemas ganaderos del sur de Brasil. Para esto, se utilizó un enfoque cualitativo, mediante entrevistas semiestructuradas, con expertos y ganaderos. Los datos recogidos se analizaron con la técnica de análisis de contenido. Los resultados mostraron que se están produciendo cambios institucionales positivos en las opciones productivas de los ganaderos, lo que aumenta su competitividad y la representatividad económica en la región. Sin embargo, aspectos organizativos y de comportamiento siguen dificultando el desarrollo de la región de forma endógena, y continúan estando muy relacionados con la formación económica de la región, que está basada en la ganadería extensiva y que se encuentra marcada por el aislamiento de los actores de la cadena productiva. Al final, fue posible proponer un modelo teórico-empírico para verificar las instituciones económicas, organizativas y de comportamiento en los sistemas ganaderos familiares y no familiares del sur de Brasil y sus respectivos procesos de cambio.
Palabras clave: desarrollo rural, economía institucional, instituciones, ganadería vacuna.

Introduction

Rio Grande do Sul is the southernmost State in Brazil. This State is economically separated into a northern and southern half. Although rich in natural resources, the southern half still faces difficulties in terms of economic development compared to the northern half. The southern half is traditionally known for activities linked to the primary sector, having historically stood out for livestock production, especially beef cattle, and grain production, such as rice and, more recently, soybeans. However, "there is little variety of products, little entrepreneurial spirit, a lack of technological innovation and, worse, a feeling of accommodation that results in the stagnation of this productive sector" (Coronel et al., 2007, p. 41).

In the southern half of Rio Grande do Sul, Brazil, where part of the Pampa biome is also located, a patrimonialist and stratified society has historically been structured, with a significant concentration of land that the economic formation of this region can explain. According to Arend and Cário (2010), it can be said that the first estancias in Rio Grande do Sul arose from organized gangs that fought among themselves over the cattle that reproduced freely in the Pampa region. In this scenario of low potential for development, it is essential to discuss this reality of much resistance (and little willingness to change) portrayed by the situation of "backwardness", "stagnation", "feeling of accommodation", and "atrophy" of entrepreneurial capacity. In this sense, this analysis is proposed based on the Endogenous Development approach, particularly about the prominent role of each region's institutional environment as a determinant of its development.

The Endogenous Development perspective interprets the mechanisms that make capital accumulation possible, arguing that innovation, production organization, urban development, and institutional dynamics determine capital accumulation. According to this approach, the interaction between these forces can produce a synergistic effect that leads to economic growth and progress in cities, regions, and countries (Vázquez-Barquero, 2007).

From the perspective of Endogenous Development, development processes are conditioned by cultural factors and the norms that regulate relations between people and organizations (Vázquez-Barquero, 2007). In other words, the decisions and choices that lead (or do not) to development have deep institutional roots since they are driven by the actors in each society, and each society has its own cultural and organizational mechanisms that may or may not facilitate economic activity (Vázquez-Barquero, 2003).

According to Vázquez-Barquero (2010), economic development is driven by regions with complex, evolved, and flexible institutions. Hence, a given region's institutions' capacity for change (and adaptation) determines its development. Institutional change and the development of institutions make it possible to reduce production and transaction costs, boost entrepreneurial capacity, and strengthen trust, relationships, and cooperation between local players (Vázquez-Barquero, 2010).

For this approach, the flexibility (or capacity for change) of institutions is a determining factor in the development of a given region, and this understanding can also be found in the work of Douglass North, according to whom institutional change is a determining factor in economic growth (Conceição, 2008). Although Endogenous Development, as systematized by Vázquez-Barquero (2002, 2007, 2010), is a rich tool for analyzing regions in need of development, both because it considers the complexity of reality and the insufficiency of purely neoclassical analysis, few empirical studies use this theory to study the development of regions.

In this sense, the study of institutional change is a key element in understanding the realities of regional development, including the potential for endogenous development. We intend to analyse this context in this paper, specifically about southern Brazil.

In this context, considering that the southern half of Rio Grande do Sul, Brazil, is underdeveloped and that livestock farming is one of the region's main economic activities, we asked: What institutional changes are present in livestock systems in southern Brazil? Moreover, how does this process relate to the region's endogenous development potential? This article aimed to analyze institutional change in livestock systems in the southern half of Rio Grande do Sul, Brazil, and its relationship with the region's endogenous development potential.

Theoretical Background

Endogenous Development

The interpretation known as endogenous development was developed in the early 1980s. Its central system is the Spaniard Antonio Vázquez-Barquero, accompanied by researchers such as Sergio Boisier and Jair do Amaral Filho. This interpretation sees development as a territorial process in which society's capacity for innovation is the mechanism that drives the transformation of the economy. It also considers that development policies are more effective when designed and implemented by local actors (Vázquez-Barquero, 2010).

From the perspective of endogenous development, development processes need to be anchored in the territory. Strategic factors for development are entrepreneurial and investment capacity based on local resources and savings, without which long-term growth reaches its limit (Vázquez-Barquero, 2010). For Amaral Filho (1996), endogenous development can be understood as bottom-up development, which starts from the original socio-economic potential of each location, rather than development that starts from state planning and intervention, i.e., from the top down.

According to Vázquez-Barquero (2010), the concept of economic development has evolved and changed so that, according to the new development theories, capital accumulation, innovation, and institutional change play a

central role in explaining the development process. Furthermore, the pillar for territorial development is the forces whose interactions generate multiplier effects of investment—which generate economies in the production system and increase returns to scale in the factors of production (Vázquez-Barquero, 2010).

Determinants of Endogenous Development

The first determining factor of endogenous development to be analyzed is the diffusion of innovations and knowledge. The endogenous development theory maintains that capital accumulation is ultimately the accumulation of knowledge and technology. In this sense, economic development depends on introducing and diffusing innovations and knowledge, which promote the transformation and renewal of production systems (Vázquez-Barquero, 2010).

In addition to the forces of innovation diffusion and territorial urban development, Vázquez-Barquero also refers to the flexible organization of production as a determining factor for development to occur endogenously. The organization of the environment in which the relationships between companies, suppliers, and customers are established determines the productivity and competitiveness of the local economy. In this way, it can be said that the organization of local production systems is one of the central factors in capital accumulation (Vázquez-Barquero, 2010).

The formation and development of networks and flexible systems of companies, as well as the interaction of companies with local players and strategic alliances, lead to the generation of economies (external and internal) of scale in local production systems. In addition, economies of scale are also observed in product research and development, thus reducing transaction costs between companies (Vázquez-Barquero, 2007).

In this sense, factors such as the contracts and norms that regulate agreements, the population's codes of behaviour, governance and culture determine each territory's development path (Vázquez-Barquero & Rodríguez-Cohard, 2016). Ultimately, economies develop when institutions change and adapt, enabling companies and actors to reach agreements, contracts and exchanges with low transaction costs. That said, institutional change is a major force for development, as the institutional framework regulates production processes and commercial relations and provides the context in which actors make their investment decisions (Vázquez-Barquero, 2010).

Institutional Change in Douglass North

In order to understand the concept of institutions and institutional change itself, we propose the use of the New Institutional Economics and, more specifically, Douglass North's Institutionalist Theory, as it shares the same theoretical assumptions about the flexibility of institutions and institutional change proposed by Vázquez-Barquero. Both North and Vázquez-Barquero share an understanding of institutional change as a determining factor in economic development, based on an understanding of the role of institutions and the possibility of the current institutional matrix determining a reduction in production and transaction costs, boosting entrepreneurial capacity, and strengthening relations and cooperation between local players.

The New Institutional Economics (NIE) is one of the institutionalist theoretical currents recognized by the works of Ronald Coase, Oliver Williamson, and Douglass North. In The Nature of the Firm, Coase (1937) laid the foundations for NIE by justifying the existence of firms based on the reduction of transaction costs, which was later further developed by Williamson into a theory of transaction costs.

The analysis of the New Institutional Economics is fundamentally centred on microeconomic aspects, proposing a reflection based on transactions (and not based on markets and changes in relative prices, as in the orthodox understanding). According to Conceição (2008), there is a connection between the three fundamental concepts proposed by the NEI: bounded rationality, opportunism, and transaction costs. In other words, transaction costs in economies are justified by behaviour based on limited rationality and opportunism, both inherent to economic organization and presupposing the existence of market failures.

In this way, understanding institutional change in Douglass North implies analyzing the interaction between agents represented by organizations and the institutional framework in force. In other words, economies' performance results from the choices made by agents in interaction with the current institutional framework, which is changing over time. In turn, agents' choices result from their shared beliefs, which arise from mental models and evolve through learning (Lopes, 2013).

From this context, North (2005) concludes that institutional change is usually incremental and path-dependent. Incremental to the extent that many other organizations will oppose a large-scale change that the intended change will harm. Path dependence is also dependent because the direction of incremental institutional change will be fairly consistent with the current institutional framework, which is determined by the knowledge and skills organizations have invested in.

Endogenous Development and Institutional Change: A Theoretical-Empirical Proposition

The Endogenous Development perspective argues that institutional change is a determining factor in developing economies. Change and adaptation to new conditions allow organizations to establish agreements and contracts, exchange goods and services with low transaction costs, boost entrepreneurial capacity, and strengthen trust and cooperative relations between local actors (Vázquez-Barquero, 2010). For this study, it is necessary to define which institutions will be studied based on their change processes.

In this sense, we propose using North's (1990) concept of institutions as formal rules (norms, man-made rules), informal rules (conventions, codes of conduct, norms of behaviour), and shared beliefs that guide human action, whose fundamental role is to reduce uncertainty by establishing a stable (but not necessarily efficient) structure for human interaction. From the perspective of endogenous development, the following institutions can be listed as determinants of the development process of economies, which can be characterized as formal rules, informal rules and shared beliefs, according to the differentiation proposed by North (Figure 1).

FIGURE 1.
Proposed classification of institutions determining endogenous development
Source: Own elaboration.

Having defined the institutions identified by the endogenous development approach as determinants of the economic development process, we propose an analysis based on Douglass North's propositions on institutional change. Based on North's (2005) understanding, it can be observed that institutional changes are normally incremental and path-dependent and can be understood based on the existence of a competitive environment that ultimately determines the interaction between organizations and institutions, the investment of organizations in skills and knowledge, considering the existing incentive system, as well as the perceptions and mental models of individuals.

Methodology

This study proposes an empirical, exploratory-descriptive study. According to Hair Jr. et al. (2005), exploratory research is appropriate when the researcher has little information and no specific hypotheses to test. In this sense, exploratory research is appropriate for this study because few studies have set out to identify the institutions present and institutional change in rural organizations, especially in the region under analysis.

Therefore, at first, the research takes on an exploratory nature by seeking, through interviews with specialists, a greater direction and the elaboration of hypotheses regarding the institutions that will be the object of analysis, as well as their respective changes and relationships with the development process. In the second phase, the research takes on a descriptive character when it seeks to identify the institutions and institutional changes, establishing relationships with the theory of endogenous development and making it possible to verify the hypotheses raised from the interviews with specialists.

According to Triviños (2009), the aim of descriptive studies is to get to know society, its characteristic features, problems, population, values, etc., to accurately describe the phenomena or facts of a given empirical environment. About the approach, the qualitative approach is used insofar as qualitative research aims to gain an in-depth understanding of a social group, an organization, etc., and is not concerned with numerical representativeness but seeks to focus on understanding and explaining the dynamics of social relations (Gerhardt & Silveira, 2009).

With this in mind, we propose using the narrative study method to analyze institutions and institutional change in the livestock systems of the Ibirapuitã River Basin in the southern part of the State of Rio Grande do Sul, Brazil. We defined this study region because livestock systems are among the region's main economic activities (Figure 2).

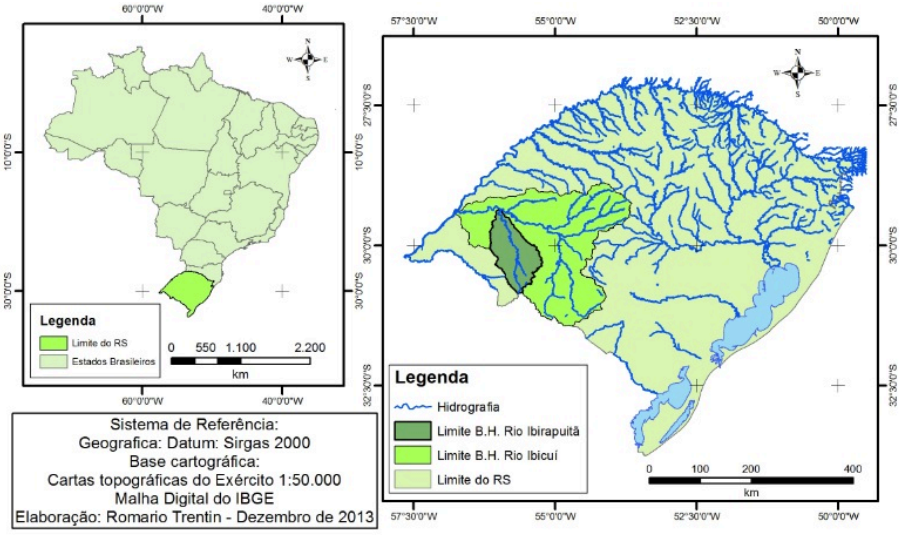

FIGURE 2.
Location map of the Ibirapuitã River Basin. Rio Grande do Sul, Brazil
Source: Trentin and Robaina (2016).

The data were initially collected through in-depth interviews with experts from the productive sector. Open-ended questions were formulated to capture elements regarding economic, behavioral, and organizational institutions, the context, and the main changes in livestock systems. In the second phase, after identifying the institutions, semi-structured interviews were conducted with livestock farmers to identify institutional changes.

Two (2) specialists in the beef cattle sector were interviewed, coded as ESP1 and ESP2, and twelve (12) family and non-family livestock farmers. To protect the identity of the producers interviewed, their names were not disclosed, and the analysis was conducted using codes. The interviewees were referred to as family livestock farmers (PF) or non-family livestock farmers (PNF), with a number corresponding to the order in which the interviews were conducted. The data collected were analyzed using content analysis techniques (Bardin, 2011), seeking elements in the interviewees' statements and observations that contribute to understanding existing institutions, the institutional change process, and their relationship with endogenous development.

Initially, a pre-analysis of the data was performed to systematize the initial data and formulate hypotheses for analysis. The data coding was carried out through thematic analysis, where the themes were Economic, Organizational, and Behavioral Institutions. This was followed by categorizing the institutions identified within each theme, inference, and interpretation of the results. In this way, an effort was made to operationalize the theoretical-empirical model presented in Figure 1. According to Bardin (2011, p. 105), "carrying out a thematic analysis consists of discovering the core meanings that compose the communication, whose presence or frequency of appearance may have significance for the chosen analytical objective."

Results

Based on the interviews with experts, a wide diversity in the profiles of beef cattle producers in the Ibirapuitã River Basin was identified. The interviewees mentioned that there are producers who have specialized and "modernized" and are now seen as "business" producers (using more intensive production techniques), as well as producers who, for the most part, still maintain traditional (more extensive) production techniques, identified as "traditional"

producers. These traditional producers, in turn, can be classified as small-scale traditional family producers and medium- or large-scale traditional non-family producers.

The interviewees also referred to another profile of cattle ranchers whose presence in the region has become more prominent in recent years: the professional who engages in beef cattle farming alongside their main profession. This type of producer can sometimes adopt a more traditional approach and other times a more business-oriented approach. Scientific studies on the profile of livestock farmers also reference this differentiation between traditional and business-oriented producers.

Economic Institutions of Livestock Systems

Regarding production systems, it was also reported that livestock production could occur in areas of native pasture (which may or may not undergo improvement and/or correction processes) or in areas where pasture is planted (notably oats and ryegrass). According to ESP1, although many producers still adopt the full-cycle system, it is only "viable" when the producer has a land area larger than 1,500 hectares.

On the other hand, the interviewees highlighted the important role of crop-livestock integration (CLI) in increasing productivity in beef cattle farming in the Ibirapuitã River Basin region. Using the crop-livestock integration system increases the producer's profit margin by making all resources used in production more efficient (Severo & Miguel, 2006).

Specifically, regarding technology applied to production processes, the interviewees identified significant changes in the last 5 to 10 years, especially due to the shift in slaughterhouses' and consumers' purchasing preferences. Today, the market seeks standardization of animals with younger finishing ages, which has intensified insemination techniques. Regarding animal feeding, the intensification through the establishment of pastures (to add more kilograms per hectare) or through fertilization and/or correction of native pastures stands out.

As for cattle commercialization, the interviewees pointed out a reduction in the sale of cattle at general cattle fairs and auctions. In this regard, ESP2 mentioned that the calf fair used to sell two thousand calves, but now it does not sell even five hundred, demonstrating a considerable decrease in this type of sales. On the other hand, the specialists noted an increase in the number of brokers mediating cattle sales (sometimes in partnership with slaughterhouses) and a rise in cattle sales through the WhatsApp application.

Regarding the role of the State in livestock production systems in the Ibirapuitã River Basin, it was found that this role can be exercised at the federal, State, and municipal levels. At the federal level, the State's involvement includes establishing laws and regulations applicable to the sector, rural credit policies (funding and financing for producers), and support programs or projects for producers. At the state and municipal levels, the state's role is related to the infrastructure available to producers, mainly the maintenance of rural roads, directly impacting production.

When asked about laws and regulations affecting the activities of livestock farmers in the Ibirapuitã River Basin region, the experts referred to tax regulations, especially the latest changes to Funrural, environmental regulations, particularly the recent modification requiring the Rural Environmental Registry, and sanitary regulations related to mandatory vaccines. In this regard, ESP2 commented, "When requirements first appear, people are startled, but then they adapt" (Table 1).

TABLE 1.
Economic institutions of livestock systems

Economic Institutions		
Formal and informal norms, and shared beliefs that determine – and are determined by – the choices of agents related to		
Production	**Marketing / Market Relations**	**Role of the State**

Source: Own elaboration.

Organizational Institutions of Livestock Systems

Regarding the organization of the productive sector of beef cattle farming in the Ibirapuitã River Basin, the interviewed experts noted little participation from producers in class entities or associations of livestock farmers. They also emphasized the limited representativeness of existing associations and entities (such as Rural Unions) in that they cannot mobilize and effectively articulate and represent the interests of the productive class. Furthermore, the experts observed little collaboration among producers.

According to the interviewee ESP1, the level of associativism among livestock farmers in the region has declined, referring to a time when cooperatives were more active (in the mid-1990s), which fostered better gathering among producers. They also mentioned CITES (Integration and Experience Exchange Clubs), which have existed since the 1970s and are groups that bring together producers for monthly meetings to exchange information and make joint purchases. According to interviewee ESP1, there are still some active CITES in Rio Grande do Sul but none in the Ibirapuitã River Basin region, noting that currently, producers do not share this information anymore, and there is little space in existing associations and unions.

Regarding the capacity for organization and mobilization in the sector, interviewee ESP2 also reported that "producers, in general, are not easy to gather... Perhaps the more business-oriented producers do this," which was echoed by interviewee ESP1, who identified greater associative and gathering of producers with similar interests in breed groups (such as Angus, Brangus, Hereford). These producers meet to organize their fairs and demands, even coordinating joint purchases, showing greater cooperation. Both interviewed experts did not identify any leadership in the region's productive sector of beef cattle farming, which can also be understood as a possible cause of the sector's lack of mobilization.

Regarding access to innovation and the dissemination of knowledge, the interviewees mentioned that producers often participate in events, congresses, lectures, and "field days," usually organized by companies selling inputs and veterinary products. Although lectures, events, and congresses are available as a means of access to innovations and knowledge related to the sector, both interviewed experts noted a tendency among local livestock farmers to seek informal consultations, such as in conversations and at veterinary shops.

Interviewee ESP2 stated, "Producers go to the veterinary shop to seek guidance to solve herd problems." Finally, regarding access to knowledge and innovations in the productive sector, interviewee ESP1 noted that traditional livestock farmers in the region, mostly of Portuguese and Spanish descent, have a more conservative culture. According to the interviewee, these producers do not typically adopt new technologies "right away"; they wait for proof over "many years."

Thus, it can be understood that the organizational institutions present in the livestock systems of the Ibirapuitã River Basin are the formal and informal norms and shared beliefs that determine (and are determined by) agents'

choices regarding the sector's organization, participation in class entities, cooperation, and the dissemination of knowledge and innovation (Table 2).

TABLE 2.
Organizational institutions of livestock systems

Organizational Institutions		
Formal and informal norms, and shared beliefs that determine – and are determined by – the choices of agents related to		
Organization of the Sector	**Cooperation Collaboration**	**Innovation Dissemination of Knowledge**

Source: Own elaboration.

Behavioural Institutions of Livestock Systems

Regarding behavioral aspects related to motivations for engaging in and remaining in beef cattle farming, the producers, due to their distinct profiles, also have different motivations. According to interviewee ESP1, "perhaps today what exists most is livestock farming as a family segment." On the other hand, they believe that the main motivation of livestock farmers today is profitability, having "purchasing power" to buy land and improve their quality of life. Interviewee ESP1 noted that in the past, the motivation was to acquire more land, produce more animals, and leave them for their successors. In contrast, a more consumer-oriented profile has become evident, especially regarding consumer goods.

For family farmers, according to interviewee ESP2, "livestock farming is their life, as it was for their grandfather and father," with a predominant focus on family tradition. They also observe that these producers consider it a secure activity, whereby the herd is often treated as savings or security. In contrast, producers with a more business-oriented profile see livestock farming as a business. Nevertheless, ESP producers do not account for small or large costs for interviewees. Business-oriented producers do a bit more accounting. "They only see if money is left or not at the end... it is not professionalized."

Regarding common behavioral aspects among producers in the beef cattle sector, both interviewed specialists highlighted a significant aspect: as a general rule, the issue of conservatism in decision-making. The interviewees believe that a large part of livestock farmers, especially those with a "traditional" profile, prefer to maintain the choices and activities with which they are already familiar rather than innovate and/or invest in a new form of production, marketing, or even organization of the production system.

In addition to this observed conservative behaviour, interviewee ESP1 also identified characteristics of distrust and pride in the behaviour of producers. Thus, it can be seen that the behavioral institutions present in the livestock systems of the Ibirapuitã River Basin are the formal and informal norms and shared beliefs that determine (and are determined by) the choices of agents regarding motivations to continue in the activity, as well as cultural and behavioral aspects (Table 3).

TABLE 3.
Behavioral institutions of livestock systems

Behavioral Institutions		
Formal and informal norms, and shared beliefs that determine – and are determined by – the choices of agents related to		
Motivations to Continue and Invest in the Activity	**Cultural Aspects** Conservative Behavior	**Behavioral Aspects** Distrust / Pride

Source: Own elaboration.

The Process of Change of Institutions in Family and Non-Family Livestock Systems

Based on interviews with family and non-family producers, it is evident that some institutions have changed while others show greater resistance to change. Regarding the production system adopted by the interviewed non-family livestock farmers and their respective management techniques, it was shown that all producers have felt the "pressure" of the market, which has begun demanding younger animals with better finishing in recent years. In this regard, three of the six interviewed producers (PNF1, PNF3, and PNF4) altered their production systems to specialize and intensify their activities according to the available area, and five of the six interviewed producers intensified their management techniques (PNF1, PNF2, PNF3, PNF5, and PNF6).

Regarding the production system adopted by the interviewed family producers and their respective management techniques, the positive impact caused by assistance from support organizations was demonstrated. Of the six interviewed producers, at least three (PF1, PF2, and PF4) changed their production systems (from fattening or complete cycle to breeding), and all reported advances related to learning management techniques and technologies that increased productivity.

In this sense, changes towards intensifying productive activity and adopting management techniques were also identified for family and non-family livestock farmers. Producers PNF1, PNF2, PNF3, and PNF5 reported that they adopted techniques such as deferred grazing, stocking rate adjustments, improvement of native pastures, and pasture establishment, with producers PNF1, PNF2, and PNF3 implementing these techniques following a generational change in taking over the family business.

It is also noted that implementing joint sales of calves represented an institutional change for cooperative producers. Farmers recognized the opportunity and altered the rules of the game regarding marketing, which had previously been done privately and in isolation, shifting to a collective approach at the annual fair. However, this change was not sustained for long, as certain producers began to perceive new opportunities that arose after participating in the fair and the visibility provided by joint sales, altering their choices toward private marketing due to the greater returns it offered, thus prevailing a mental model of individual aspiration, without planning for the group or long-term relationships.

Regarding the marketing of animals, a new method was introduced through the possibility of selling videos sent through WhatsApp, allowing producers greater freedom and energizing the production chain. However, no

changes were identified in the relationships among market agents, which are structured on shared norms and beliefs that guide organizations to seek the best deal, with little loyalty in relationships and considerable distrust toward marketing to slaughterhouses.

Regarding the State's federal role, institutional changes related to tax rules and the requirement for the Rural Environmental Registry stand out. Conversely, concerning the State's role at the state and municipal levels, particularly regarding rural roads, all interviewed non-family livestock farmers referred to the poor conditions of rural access roads.

Thus, it is evident that changes occurred in economic institutions related to production systems, with alterations in production systems and management techniques for family and non-family livestock farmers. The changes in economic institutions are summarized in Table 4.

TABLE 4.
Changes in economic institutions

Group of Livestock Farmers	Production Systems	Marketing / Vertical Governance	Role of the State
Family Livestock Farmers	Specialization of the production system (breeding) and/or improvement in management techniques after joining the Association	Organization of joint sale of calves Weakening of joint marketing with perception of new opportunities via application	Maronna Foundation and Together to Compete as Stimulators of Production CAR and Taxes
Non-Family Livestock Farmers	Market as a Driver of Management Changes Family Succession as a Trigger for Productive Change	No changes in marketing were identified	Sebrae, Senar, Farsul as Stimulators of Production CAR and Taxes

Source: Own elaboration.

Regarding the productive sector's organization, most non-family livestock farmers interviewed do not actively participate in any union, group, or representative association of the category.

In this sense, there is no articulation concerning the sector's organization and participation in decision-making that affects producers. Thus, greater resistance to institutional change regarding the productive sector's organization and the producers' participation in decision-making is evident.

When questioned about cooperation and collaboration among organizations in the productive sector, the family livestock farmers interviewed believe there is cooperation and unity among producers despite reporting some isolated instances of friction. Regarding the diffusion of knowledge and innovation, all the family livestock farmers interviewed stated that they have access to information primarily due to their association participation. According to the interviewee PF5, "Before, it was learning from the field; I would look to one another for guidance." Similarly, the interviewee PF4 reported that they had no access to innovations and technologies before joining the association. The changes in organizational institutions are summarized in Table 5 below.

TABLE 5.
Changes in organizational institutions

Group of Livestock Farmers	Organization of the Sector | Participation in Entities	Cooperation / Collaboration	Innovation and Knowledge Diffusion
Family Livestock Farmers	Creation of the Rincão do 28 Producers' Association	Cooperation among the Association's Producers	Association as a Locus for Innovation and Knowledge Diffusion
Non-Family Livestock Farmers	No institutional changes were identified.		

Source: Own elaboration.

There are theories and economic rationalities regarding livestock producers. Due to changing competitiveness, organizations are altering their perception that beef cattle farming must be highly profitable, provide personal satisfaction, and preserve tradition.

Regarding the typical cultural aspects of producers in the Ibirapuitã River Basin, conservative behaviour in decision-making stands out. In this sense, when asked whether producers in the region exhibited more conservative behaviour (resistant to change) or more entrepreneurial behaviour, all respondents (both family and non-family producers) identified a predominantly conservative behaviour that has changed little over time, showing significant resistance to change, especially among older producers.

Consequently, it is observed that the low intensity of competition and greater availability of natural resources (i.e., a low level of scarcity and competition) may have contributed to the maintenance of this conservative and change-resistant behaviour over time.

However, despite the respondents identifying this predominance of conservative behaviour among producers in the region, particularly regarding older producers, all respondents notice changes. Respondent PNF1 believes that nowadays, while the majority are still conservative, the younger generation displays more entrepreneurial characteristics.

In addition to the cultural characteristic of conservatism and resistance to change, the interviewed producers reported behavioral aspects and characteristics of distrust and pride that are also prominent among regional producers, even if they may result in economic losses for the business. In this regard, most of the interviewed producers mentioned that there are indeed producers who "stack" cattle in the pasture, opting not to adjust stocking rates or defer grazing so that "others" do not think they are undercapitalized. The changes in behavioral institutions are summarized in Table 6.

TABLE 6.
Changes in behavioral institutions

Group of Cattle Farmers	**Motivations to Continue and Invest in the Activity**	**Cultural Aspects** Conservative Behavior	**Behavioral Aspects** Distrust / Pride
Family Livestock Farmers	Growth of Economic Motivations	Emergence of a Less Conservative Behavior and Behavioral Changes Due to Productive Cooperation and Market Pressure	
Non-Family Livestock Farmers	Growth of Economic Motivations	Emergence of a Less Conservative Behavior and Behavioral Changes Due to Family Succession, Market Pressure, and the Advancement of Agriculture	

Source: Own elaboration.

Discussion

Regarding non-family farmers, a process of change towards intensification of productive activities and adaptation of production systems to new market demands was observed, which is a positive aspect of the dynamics of regional development. In other words, producers are reacting to market competition and altering their production choices, resulting in significant changes in the productive dynamics of the region and creating a favourable environment for market entry.

It was found that the integration of crops and livestock is an essential factor in energizing rural activities in southern Brazil. The interviewed non-family farmers identified a more business-oriented profile among producers engaged in this type of integration, due to the nature of agricultural activities with shorter cycles, requiring greater organization and even more cooperation within the production chain.

In this regard, these changes enhance the potential for endogenous development in the region, as endogenous development presupposes a continuous increase in the capacity to add value to production. This ensures that the economic surplus generated remains within the local economy and/or attracts surpluses from other regions, thus promoting increased employment, products, and income in the region (Amaral Filho, 2001).

The introduction and dissemination of innovations and knowledge are also verified, mainly through the role played by support organizations. These organizations promote knowledge diffusion among farmers. According to Vázquez-Barquero (2010), economic development depends on introducing and disseminating innovations and knowledge, which promote the transformation and renewal of production systems—critical factors for endogenous development.

Furthermore, through the formation and development of networks and flexible systems of companies and organizations, as well as the interaction between companies, local actors, and strategic alliances, economies of scale (both external and internal) can be generated in local production systems (Vázquez-Barquero, 2007), which was not observed concerning the interviewed livestock systems.

According to North (2005), the lack of identification of changes regarding economic institutions related to marketing and market relations can be explained by the reciprocal dependence relationship between organizations and institutions. In other words, organizations' viability, profitability, and survival depend on the existing institutional framework that allows them to exist.

Concerning organizational aspects, some barriers to the potential for endogenous development in the region were identified, particularly among non-family farmers, who reported a limited capacity for sector organization and very little participation in decision-making related to beef cattle activities. No institutional changes in this regard were identified. Even unionized producers reported little participation in decision-making and believed the union provides little or no representation for farmers.

As for behavioral institutions, the prevalence of non-economic motivations for engaging in beef cattle activities in the region was noted among family and non-family farmers. Deeply rooted cultural and behavioral factors (family tradition, personal satisfaction) determine farmers' productive choices, which can lead to productive choices that do not enhance the capital accumulation necessary for endogenous development.

On the other hand, a process of change in the motivations and economic rationality of rural organizations was noted. Due to competitiveness and sometimes family succession, organizations realize that beef cattle raising also needs to be a profitable activity, in addition to providing them with security, personal satisfaction, and family tradition. It was also observed that conservative behaviour in decision-making had changed little over time.

In this sense, North (2005) clarifies that individuals' perceptions are critical to the choices they make, and these perceptions depend on mental models, which are partly a result of individuals' cultural heritage but also evolve through local problem-solving and learning. In this aspect, a process of change in the shared beliefs of organizations regarding conservatism in decision-making can be envisioned. This process of change, according to North (2005), occurs when agents face market competition, perceive new or altered opportunities, and can decide whether to induce institutional change by altering formal rules, informal rules, or shared beliefs.

Finally, some changes can be observed concerning the behavioral institutions that guide farmers' decision-making. These institutions are understood as the formal and informal norms and shared beliefs that determine (and are determined by) agents' choices regarding their motivations to continue and invest in the activity, cultural aspects (conservative behaviour), and behavioral aspects (distrust and pride).

Final Considerations

For the purpose of this study, and based on the assumptions of endogenous development, a theoretical-empirical model was proposed to verify the economic, organizational, and behavioral institutions present in the family and non-family livestock systems in southern Brazil and their respective processes of change.

In this sense, flexibility and resistance to institutional change in livestock systems were verified, which were directly related to the potential for endogenous development in the region. Regarding economic institutions, it was found that the market is changing, becoming more competitive and demanding in terms of quality, standardization of the herd (genetics), and intensification of production—factors that induce changes on the part of producers.

Thus, it was evident that producers have altered their production choices to adapt to this new reality, specializing and intensifying production. These changes demonstrate institutional flexibility and positively impact the region's endogenous development potential.

Regarding non-family livestock producers, greater resistance to change was identified in organizational institutions and institutions related to production marketing. It was found that a lack of trust and fidelity in marketing still predominates, along with limited articulation of the production chain and distrust in selling production to slaughterhouses. These aspects negatively impact the potential for endogenous development in the region.

Therefore, it is evident that positive institutional changes are occurring concerning the productive choices of livestock producers, which are evolving to remain competitive and representative in the region's economic matrix. Nonetheless, organizational and behavioral aspects still hinder the endogenous development of the region, which are still closely related to the economic formation of the region, based on extensive livestock farming and marked by the isolation of actors in the production chain.

Finally, it is hoped that this research can contribute to the understanding of the reality and potential for endogenous development of livestock systems in southern Brazil and other regions of South America, highlighting dimensions that can still be explored to promote regional development and identifying changes that are relevant for maintaining and developing productive activity.

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Notes

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