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Value Creation and Institutional Dynamics in Dairy Systems in Colombia

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ABSTRACT

Context: The dairy sector contributes 24.3% to Colombia's livestock GDP, with Northern Antioquia serving as the country's primary specialized dairy basin. This production system characterized by small-scale family producers organized into cooperatives faces critical structural challenges: trade liberalization (due to Free Trade Agreements in 2026), rural labor shortages, and a crisis of generational succession. While quantitative studies have previously characterized its productivity and competitiveness, there is limited research regarding how actors co-create value, and which formal and informal institutional configurations shape their economic practices. Methods: This qualitative study employs a sequential design grounded in two systematic literature reviews. Fifteen theoretical codes were derived across three core constructs: Value Creation, Institutional Framework, and Competitive Advantage. Data collection involved 24 semi-structured interviews with producers (small, medium, and large), processors, and cooperative representatives, complemented by 10 non-participant farm observations. A directed qualitative content analysis was conducted, combining deductive and inductive coding with methodological triangulation to ensure analytical rigor and credibility. Results: The analysis yielded 2,438 codifications. The central finding is the marked predominance of informal institutions over formal ones at a ratio of 2.4:1 (376 vs. 157 codifications), demonstrating that shared values, interpersonal trust, and generational tradition constitute the primary regulatory framework for economic behavior. Ten unanticipated themes emerged, notably: family structure as a source of competitive advantage (347 mentions), time/continuity as a dimension of value (206 mentions), and democratic participation in cooperatives as a mechanism for co-creation (154 mentions). Co-occurrence analysis revealed that cooperatives function as hybrid institutional spaces that bridge the formal-informal divide, mitigating institutional voids through volume aggregation, collective bargaining, and the provision of specialized technical services. Conclusions: This study offers four theoretical contributions: (1) it empirically documents the institutional predominance of the informal in traditional agro-industrial chains, extending institutional theory to the family-based dairy context; (2) it identifies emerging dimensions of value (temporality and ethics) previously overlooked in the literature; (3) it conceptualizes "economies of family scope" as an alternative source of competitive advantage that challenges traditional Porterian assumptions; and (4) it characterizes the cooperative model as an effective mechanism for reducing institutional voids. These findings have significant implications for public policy, suggesting that strategic interventions must align with, rather than oppose, existing informal institutional frameworks.

Keywords: Value chains; Dairy farming; Informal institutions; Qualitative research; Smallholders; Colombia.

INTRODUCTION

The dairy sector constitutes a cornerstone of the Colombian rural economy. According to FEDEGAN (2024), dairy farming contributes 1.7% to the national Gross Domestic Product (GDP), 20.2% to the agricultural GDP, and 51.5% to the livestock GDP. Colombia ranks as the fourth-largest milk producer in Latin America, with a production of 7,251 million liters in 2022, and the sector provides approximately 700,000 direct jobs nationwide (USDA, 2024). The country encompasses more than 620,000 livestock farms, of which approximately 80% are small-scale operations holding fewer than 50 animals, underscoring the predominance of family-based production structures (FEDEGAN, 2024).

Within this national landscape, Northern Antioquia stands as the country's principal specialized dairy basin, located in the High Andean regions that collectively contribute 32% of Colombia's total milk production equivalent to approximately 2,270 million liters annually (FEDEGAN, 2022). The municipalities of San Pedro de los Milagros, Entrerríos, Don Matías, Santa Rosa de Osos, Yarumal, and Belmira concentrate a high density of formal production characterized by favorable climatic conditions, productive pastures, and a deeply rooted dairy tradition.

The institutional architecture of this territory has been historically shaped by cooperativism since the 1960s, when small-scale farmers organized to strengthen their collective bargaining power against intermediaries and processing companies that imposed minimum transaction volumes. The cooperative model in the region has progressively expanded over six decades, establishing processing plants, technical assistance programs, and export operations. Today, the leading cooperative integrates thousands of farmer-members across multiple departments and represents the majority of the region's dairy exports. This cooperative model has functioned not merely as a commercialization channel but as an institutional infrastructure that provides technical services, volume aggregation, democratic participation mechanisms, and a sense of belonging for producer's elements that this study empirically documents as central to value creation and institutional coordination.

Beyond its economic relevance, this production system exhibits distinctive organizational features that merit scholarly attention. The coexistence of small-scale family units with medium-sized and technified producers creates a heterogeneous landscape where economic behavior cannot be explained solely by technical-productive variables. Daily practices are rooted in generational learning, while coordination relies on trust, reputation, and reciprocity rather than formal contracts alone.

These practices shape tacit knowledge that is difficult to codify; simultaneously, they operate as informal institutions that guide daily decisions regarding quality, investment, technological adoption, exchange, and persistence in the activity. This reality becomes increasingly critical in a context of growing structural pressures: trade liberalization and external competition (including tariff dismantling scheduled for 2026 under the FTA with the United States), sustained increases in production costs, scarcity of rural labor due to migration, and a generational succession crisis driven by young people's reluctance to continue the activity.

Collectively, these challenges strain the system's competitiveness and sustainability, demanding a deep understanding from the perspective of those participating in the chain. Despite the relevance of this issue, the literature on agro-industrial value chains has favored quantitative approaches oriented toward productivity, efficiency, and measurable competitiveness. While these approaches have helped describe performance and bottlenecks, they are limited in capturing relational and institutional phenomena operating at less observable levels: arrangements of trust, shared meanings that legitimize practices, and informal institutional configurations that model economic behavior.

In Colombia, studies on the dairy sector have tended to focus on technical-productive characterizations or competitiveness analyses based on economic indicators, with less development of explanations regarding how actors create value in their daily practice, and which institutions (formal and informal) enable or restrict such value creation.

This gap is relevant for three reasons. First, from the perspective of institutional theory, in rural contexts of emerging economies, informal institutions (traditions, values, trust networks) can be more determinant than formal regulations in explaining coordination, compliance, and economic behavior. However, these institutions are often naturalized and tacit, making them difficult to capture through standardized instruments.

Second, although value creation literature has evolved toward relational and ecosystemic perspectives where value is co-created among multiple actors, its empirical application in traditional agro-industrial chains of emerging economies remains limited.

Third, competitiveness has frequently been explained through assumptions of economies of scale and cost leadership, which may not fully align with family structures where labor organization and domestic logic produce alternative sources of efficiency and persistence.

Based on the foregoing, this study adopts a qualitative approach within an interpretive paradigm to analyze value creation practices and the institutional configurations that shape them in the dairy value chain of Northern Antioquia, from the actors' perspective. Specifically, the work is guided by the following questions: (i) What dimensions and mechanisms of value creation do chain actors recognize? (ii) What formal and informal institutions configure productive and commercial practices? (iii) How do formal and informal institutions interact in this context? (iv) What barriers and institutional voids limit value creation? (v) How are value creation, institutional framework, and competitive advantage articulated in the chain's dynamics?

The study seeks to contribute in four ways: (1) providing empirical evidence on institutional configurations especially informal ones that regulate economic behavior in traditional agro-industrial chains; (2) enriching the discussion on value creation by identifying dimensions and mechanisms emerging from the family dairy context; (3) broadening the understanding of competitive advantage by exploring alternative sources in systems where family and cooperative logic is central ; and (4) generating practical implications for the design of public policies and associative strategies that work with, rather than against, existing informal institutions.

The article is structured as follows: first, the conceptual framework is presented; then, the methodological design is described; subsequently, the findings are exposed; and finally, theoretical and practical implications, limitations, and future lines of research are discussed.

THEORETICAL FRAMEWORK

This study integrates three constructs to explain dynamics in traditional agro-industrial chains: value creation, institution al framework, and competitive advantage. The central assumption is that value creation depends not only on productive capabilities but also on the institutional framework that defines incentives, legitimizes practices, and structures coordination among actors. In rural contexts of emerging economies, this institutionality includes both formal rules and informal arrangements, with direct effects on what is understood as value and how it materializes in productive and commercial practices. Consequently, competitive advantage results from the interaction between resources, relationships, and rules, and can be sustained by relational capabilities and tacit knowledge that are difficult to imitate. Under this approach, the cooperative model is conceptualized as a hybrid institutional arrangement capable of articulating the formal and the informal, stabilizing transactions, and enabling collective value creation processes.

Value creation has traditionally been explained through Porter's value chain (1985), where value is "added" through sequential activities controlled by the firm. This approach has been useful for mapping processes and costs but is limited for understanding chains where value is configured through sustained interactions, relational agreements, and non-codified resources. Service-Dominant Logic proposes a re-reading: value is co-created through resource integration and interaction among multiple actors and is determined by the beneficiary in a specific context. Therefore, the distinction between *value-in-exchange* and *value-in-use* allows for an analysis of not just the spot price, but temporal processes of coordination, continuity, and relationship experience.

In emerging economies, this view is reinforced by approaches considering that value creation incorporates social and relational dimensions; in Base of the Pyramid contexts, value can include simultaneous benefits for consumers, producers, and other stakeholders, and low-income environments require business models distinct from conventional assumptions. Analytically, this research assumes the distinction between *mechanisms* and *dimensions* of value: mechanisms refer to activities, resources, and relationships that enable value, while dimensions correspond to attributes recognized as valuable by the actors. In the dairy sector, the most reported technical-economic dimensions include compositional quality, volume, safety, and traceability; however, in traditional chains, it is plausible that relational and temporal dimensions are critical for sustaining coordination and persistence yet remain underrepresented in indicator-centered approaches.

The institutional framework explains why certain practices persist, become legitimized, and guide economic decisions. North (1990) defines institutions as the rules of the game that structure incentives and constraints, distinguishing between formal institutions and informal norms. Scott (2014) expands this vision through regulative, normative, and cultural-cognitive pillars, with the latter being especially influential in contexts where daily coordination relies on shared meanings and naturalized practices. In rural territories of emerging economies, the weight of trust and tradition can outweigh formal enforcement, making it difficult to capture the institutional aspect with standardized instruments and highlighting the importance of understanding tacit arrangements. From this perspective, the informal is not accessory: it can complement, compete with, accommodate, or substitute the formal. This interaction is particularly visible in scenarios of institutional voids, where formal market supports are weak or insufficient, and reputation and trust function as alternative mechanisms for coordination and compliance.

Furthermore, actors do not merely adapt to the institutional framework but "work" it in practice. *Institutional bricolage* describes the creative recombination of available resources and rules to overcome constraints in value creation processes. In turn, the institutional environment incorporates systems of meaning and culturally

legitimized norms; when practices become institutionalized, they are accepted as appropriate and socially reproduced.

Competitive advantage, for its part, has been addressed through strategic positioning and the Resource-Based View (RBB). Porter (1985) explains advantage through cost leadership or differentiation, while Barney (1991) links it to VRIO resources. However, in emerging economies, the institutional framework conditions which strategies are viable and legitimate, and which resources acquire a strategic character. The institution-based view argues that formal and informal rules configure the sources and sustainability of competitive advantage. In traditional chains, this implies that informal arrangements such as trust, reciprocity, or productive traditions can become strategic resources, although they can also operate as barriers when they stabilize resistance or inefficient practices.

The knowledge-based view complements this by highlighting that knowledge is the central strategic resource, especially when it is tacit and difficult to imitate. In family systems, such knowledge is transmitted through observation and practice and remains embedded in territorial routines. Finally, the Chayanovian tradition suggests that the competitiveness of family units responds to logics distinct from the capitalist enterprise; the "self-exploitation" of domestic labor allows production to be sustained under conditions that would be unviable if labor were fully monetized. This opens the possibility of alternative sources of advantage that do not rest on economies of scale, but on domestic and territorial arrangements that reconfigure costs and capabilities.

In conclusion, this study proposes that institutionality configures value creation by defining what is considered valuable and how economic activity is coordinated, and that value creation practices can translate into competitive advantage when they enable market-valued attributes or cost efficiencies mediated by tacit knowledge and hard-to-replicate relationships. In scenarios with institutional voids, informal institutions can compensate for formal weaknesses and sustain coordination arrangements. Within this architecture, the cooperative model is conceptualized as a hybrid institutional arrangement capable of articulating formal rules with informal practices and providing coordination infrastructure for transactions in contexts of formal weakness. From the logic of co-creation, cooperatives can function as resource integration platforms among actors, enabling collective value creation dynamics and shared competitive advantages.

METHODOLOGY

Research Design and Epistemological Approach

This study employs a qualitative design grounded in the interpretive paradigm, which assumes that social reality is constructed intersubjectively and that its understanding requires accessing meanings, values, and experiences from the actors' perspective. This stance is consistent with the article's objective: to understand how participants in the Northern Antioquia dairy chain construct value creation practices and how formal and informal institutions shape said practices. Directed qualitative content analysis was adopted, which is pertinent when prior theory exists to guide initial categories, yet analytical openness is maintained to identify emerging patterns and dimensions. This approach allows for contrasting theoretical constructs with contextual evidence and, simultaneously, enriching the conceptual framework based on unanticipated findings. The choice of a qualitative design further responds to the fact that informal institutions often operate in a tacit and naturalized manner; as North (1990) points out, they are not necessarily codified, even though they structure economic behavior.

Sequential Logic of the Study and Construction of the Category System

The design followed an articulated sequence between theoretical grounding, empirical collection, and iterative analysis, consistent with recommendations for qualitative research that balances conceptual rigor and contextual sensitivity. The system of deductive categories was derived from two systematic literature reviews previously conducted under the PRISMA 2020 protocol. The first review (2010–2024) focused on value creation and institutionality in agro-industrial contexts, consulting Scopus, Web of Science, and SciELO. Explicit inclusion/exclusion criteria were applied, and 85 articles were narratively synthesized, deriving ten theoretical codes: five for Value Creation and five for Institutionality. The second review (2025) addressed agro-industrial chains and technology watch, incorporating scientific literature and patents (Scopus, Web of Science, Lens, Espacenet). A total of 120 articles and 45 patents on dairy production, processing, and traceability technologies were analyzed, obtaining five codes for Competitive Advantage. The integration of both reviews formed a deductive system of 15 codes grouped into three constructs. For its empirical application, an expanded codebook with 73 inductive sub-codes was developed, including operational definitions, empirical indicators, and inclusion/exclusion criteria, strengthening the consistency and traceability of the analytical process.

Context, Sampling, and Theoretical Saturation

The study was conducted in the dairy basin of Northern Antioquia, Colombia, in the municipalities of San Pedro de los Milagros, Belmira, Entrerríos, Don Matías, Santa Rosa de Osos, Yarumal, Girardota, Bello, and Angostura. This context was selected due to its productive relevance in the formal sector, its diversity of actors and productive scales, and the institutional presence of the cooperative model. Intentional sampling with a maximum variation criterion was used, with inclusion criteria being participation in the regional chain, a minimum of three years of experience, voluntariness, and the capacity to relate productive and institutional practices. Initial access was facilitated by the *Colanta* cooperative and complemented by snowball sampling to incorporate independent producers and actors outside the cooperative system, reducing biases from a single-entry point.

The final sample included 24 informants: small producers, medium producers, technified producers, processors, and a cooperative representative. The sample size was not fixed *a priori*, following the principle of theoretical saturation. Saturation was operationally defined as the point at which no new codes or categories emerge, and additional interviews confirm patterns without contributing substantive variation. Monitoring was performed after each interview through systematic registration of emerging codes, code density, and interpretive nuances. Code saturation was observed around interview 18, and category saturation toward interview 20; four additional interviews were conducted to verify stability, in line with prior methodological evidence:

Table 1. Profile of Informants (n = 24)

Type of Actor	Characteristics	Municipalities	n	%
Small-scale producer	<50 animals, family-based structure, <500 L/day	San Pedro, Belmira, Entrerríos	12	50.0
Medium-scale producer	50–150 animals, occasional employees	San Pedro, Don Matías, Santa Rosa, Yarumal Bello, Girardota	7	29.2
Large-scale technified producer	>150 animals, business-oriented structure	San Pedro, Don Matías	2	8.3
Processor	Dairy product processing	San Pedro, Angostura	2	8.3
Cooperative representative	Collection and service management	San Pedro (sede Colanta)	1	4.2
Total			24	100

Source: Own elaboration

Data Collection Techniques

Semi-structured interviews and non-participant observation were employed to triangulate discourse and practice. The interviews (n=24) were conducted between October and December 2025, using a guide structured into blocks on characterization, value creation, institutionality, chain relationships, and competitive advantage. Questions were open-ended, and probes were applied to deepen meanings. Seventeen interviews were conducted in person and seven via call or video call. All were recorded with informed consent and transcribed verbatim. The corpus reached 106,521 words; the average duration was 52 minutes (range 35–78), evidencing discursive richness.

Non-participant observation included ten visits to farms and companies selected for variation in size and productive model. Dimensions of infrastructure and processes, work organization, formal and informal institutionality, quality and traceability practices, and marketing/logistics were recorded using a structured guide and field notes. Photographs were captured with authorization. This strategy sought to contrast narratives with observable practices and strengthen credibility through methodological triangulation.

Analysis Procedure and Technological Support

Analysis was performed using ATLAS.ti (version 23) to manage coding, retrieval, co-occurrences, and memos. The procedure followed the directed approach in an iterative logic: (i) full reading and analytical memos; (ii) deductive coding with the system of 15 codes supported by the codebook; (iii) inductive coding for uncovered segments, generating *in vivo* codes and thematic groupings through constant comparison; and (iv) relational analysis using frequencies, coverage, and co-occurrences to identify links between value creation, institutionality, and competitive advantage.

Triangulation, Rigor, and Reflexivity

Methodological triangulation was applied by integrating interviews, observation, and secondary sector documents. Convergences, divergences, and complementarities were sought to robustify interpretations. Rigor was ensured through Lincoln and Guba's (1985) criteria, complemented by Tracy (2010): credibility (triangulation, verbatim quotes, documented saturation), transferability (thick description of context and participants), dependability (protocol and codebook), and confirmability (code–quote–interpretation chain of evidence and memos). Reflexivity was addressed through a reflexive journal documenting assumptions, decisions, and possible interpretive biases, understood as an analytical resource.

Ethical Considerations

The study received approval from the Ethics Committee of the Universidad Nacional de Colombia, Medellín Headquarters.... Informed consent, anonymization (E01–E24), data protection in encrypted storage with restricted access, retention for five years according to institutional guidelines, and return of results via executive summary without monetary compensation were guaranteed.

RESULTS

The systematic coding process of the textual corpus (106,521 words from 24 interviews) generated 2,438 codifications distributed across the three theoretical constructs. Theoretical saturation was evidenced starting at interview 20, after which no new substantive codes or categories emerged, confirming patterns in the subsequent four interviews. Findings are presented below, organized by construct, integrating frequency analysis with qualitative interpretation backed by representative verbatim quotes and triangulated observation data.

4.1. General Distribution of Codes

Figure 1 presents the distribution of coded references by construct. Value Creation concentrates 44% of references (n=1,073), followed by Institutionality (31%, n=748) and Competitive Advantage (25%, n=617).

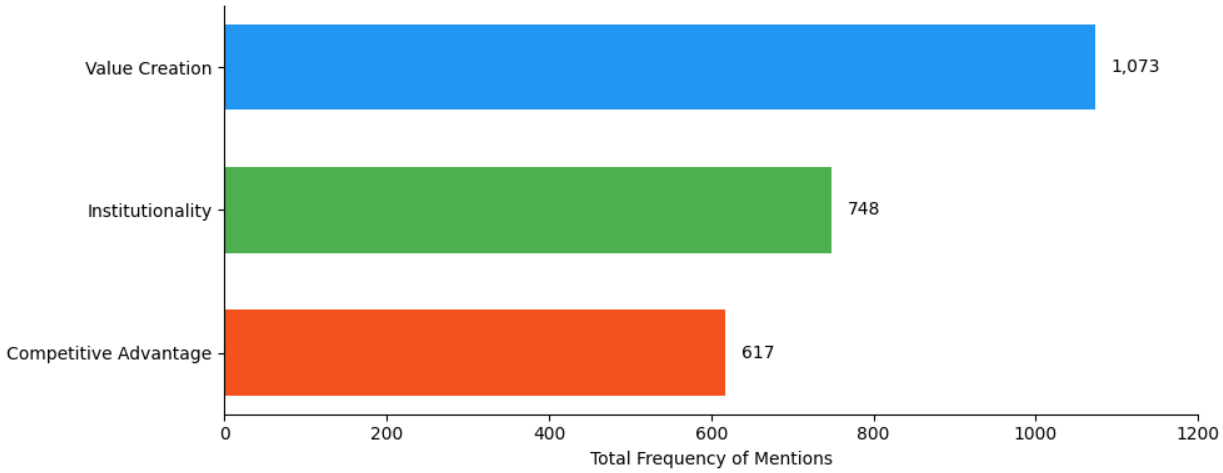

Figure 1 Distribution of references coded by construct (n=2,438 references).
Source: own elaboration

This distribution suggests that, when narrating their experience, actors prioritize concrete value creation practices (what they do daily). Institutionality appears with less explicit frequency, not due to a lack of relevance, but due to its tacit and naturalized character: many informal rules are practiced more than they are named.

4.2. Ranking of Theoretical Codes

The five codes with the highest frequency were: INST_INF (376), CV_MEC (286), CV_DIM (266), CV_EI (220), and VC_DIF (205).

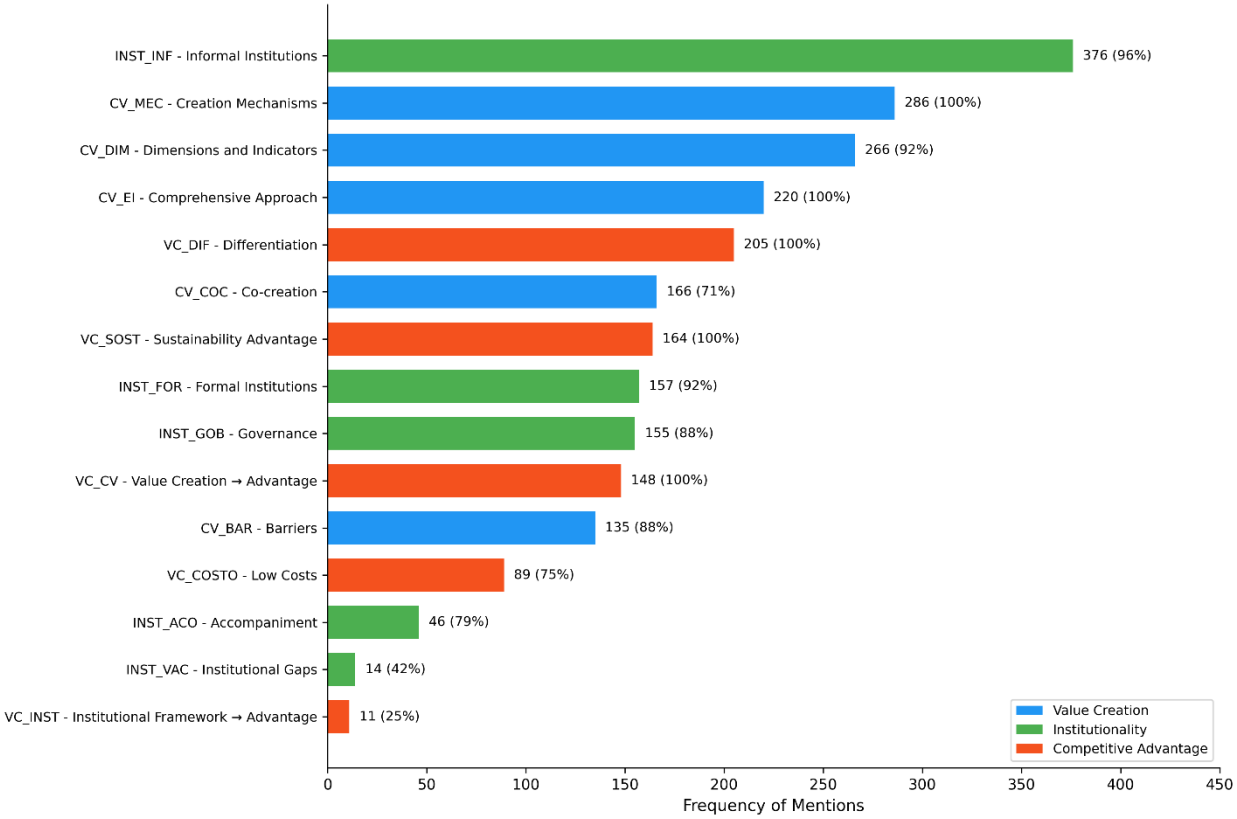

Figure 2 Frequency of coded references and coverage by theoretical code (n=24)
Source: own elaboration

Table 2 Frequency of coded references and coverage by theoretical code.

Código	Nombre	Referencias codificadas	Cobertura
INST_INF	Informal institutions	376	96%
CV_MEC	Creation Mechanisms	286	100%
CV_DIM	Dimensions and indicators	266	92%
CV_EI	Comprehensive/multi-stakeholder approach	220	100%
VC_DIF	Differentiation	205	100%
CV_COC	Co-creation	166	71%
VC_SOST	Sustainability advantage	164	100%
INST_FOR	Formal institutions	157	92%
INST_GOB	Governance	155	88%
VC_CV	Value creation → Advantage	148	100%
CV_BAR	Barriers	135	88%
VC_COSTO	Low costs	89	75%
INST_ACO	Accompaniment	46	79%
INST_VAC	Institutional gaps	14	42%
VC_INST	Institutional framework → Advantage	11	25%

Source: own elaboration

The frequency and coverage pattern is interpreted as an indicator of discursive salience (not causal importance). The predominance of INST_INF over INST_FOR stands out at a ratio of 2.4:1 (376 vs. 157), consistent with contexts where daily coordination relies on trust, custom, and shared values. Codes such as CV_MEC (286; 100% coverage) and VC_DIF (205; 100%) combine high intensity with generalized presence, while INST_VAC (14; 42%) and VC_INST (11; 25%) appear as more situated phenomena or those less explicitly articulated by participants.

4.2.1. Value Creation: Practices and Manifestations

Value Creation Mechanisms (CV_MEC)

The CV_MEC code obtained the second-highest frequency (286 mentions, 100% coverage), evidencing that actors possess explicit and articulated knowledge about how they generate value in their operations. Inductive analysis of the coded segments allowed for the identification of three categories of mechanisms, hierarchized by frequency:

- **Feeding and nutrition (125 mentions, 44% of the code):** A recurring debate emerged between traditional pasture-based systems and intensive stable-bound systems, reflecting tensions between productive efficiency and cost structure.
  "We are pasture-based. With good grass, you can produce without so much concentrate, and the cost is lower" (E22, large producer)
  "Concentrate prices went up a lot, but if you don't feed them, production drops. You have to find the balance" (E07, small producer)
- **Productive infrastructure (122 mentions, 43%):** Investments in milking parlors and cooling tanks were recognized as transformative for value creation capacity, particularly due to their impact on quality and the price received.

  "When we installed the cooling tank, everything changed. Our milk no longer spoils, and the price improved" (E14, medium-sized producer).)

  • **Technology (89 mentions, 31%):** Technological adoption—sensors, collars, automation—appeared to be primarily associated with medium and large producers, highlighting an access gap based on production scale.

  "With collars, you know when the cow is in heat, how much milk each one produces… that helps you make decisions" (E19, producer using technology))

Triangulation with observation: Field data corroborate these findings: 80% of the farms observed had adequate facilities and 90% presented good hygiene conditions, demonstrating consistency between discourse and practice.

4.2.2. Value Dimensions (CV_DIM))

To characterize the value dimensions, inductive subcodes associated with CV_DIM were analyzed. These dimensions are not mutually exclusive, and a single segment can receive multiple subcodes; therefore, the counts per dimension should not be interpreted as an additive breakdown of the total CV_DIM. The analysis identified six dimensions, two of which emerged inductively (Table 3).

Table 3 Value dimensions identified (inductive subcodes).

Dimension	Coded references	Empirical manifestations
Volume	314	"Liters per day," "production"
Time/Continuity *	206	"365 days," "without fail," "consistency"
Compositional quality	194	"Fat," "protein," "CFU"
Efficiency	89	"Cost per liter," "efficiency"
Animal welfare *	67	"Cow health," "comfort," "stress"
Traceability	23	"Records," "identification"

Source: own elaboration.
Note: Dimensions not anticipated in the initial theoretical framework are identified as "emergent".

The most relevant finding is the emergence of time/continuity as the second most frequent value dimension (206 mentions). This dimension, absent from the dominant value creation literature that prioritizes product attributes, captures the intrinsic value that stakeholders assign to the permanence and regularity of production:

"This is every day, 365 days a year. There are no Sundays, no holidays. That consistency is what makes us different" (E14, medium-sized producer).

Equally significant is the emergence of animal welfare (67 mentions) as an ethical dimension not directly linked to economic incentives. Producers expressed moral considerations toward their animals that transcend productivity calculations:

"A stressed cow doesn't produce well. I care for my animals; I take care of them because they provide my livelihood" (E03, small-scale producer).

Barriers to Value Creation (CV_BAR)

Barriers to value creation were explored using inductive subcodes associated with CV_BAR. Since segments can be multi-coded, the frequencies per barrier reflect thematic salience and do not add up to the total for the code. Five main barriers were identified, three of which emerged from the theoretical framework (Table 4).

Table 4 Barriers to value creation (inductive subcodes).

Barrier	Coded references	Category
Production costs	120	Advance
Labor shortage (emerging)	85	Emergent
Climate variability (emergent)	67	Emergent
Price volatility	58	Advance
Pressure on the land (emergent)	45	Emergent

Note: Barriers not anticipated in the initial theoretical framework are identified as "emerging".

While anticipated barriers such as production costs (120 mentions) and price volatility (58 mentions) correspond to economic factors widely documented in the sector literature, emerging barriers reveal less visible structural pressures. Labor shortages (85 mentions) emerged with intensity, associated with rural-urban migration processes and changes in the job aspirations of new generations:

"The biggest problem we have is that there's no one to work. Young people are leaving for the city; they don't want to get up early to milk the cows." (E16, medium-sized producer)

Climate variability (67 mentions) was identified as a contextual barrier that affects both productivity and collection logistics:

"Last year we lost a lot because of the winter. The roads were damaged, and they couldn't get in to collect the milk" (E04, small producer)

Finally, pressure on land (45 mentions) reflects competition for land use with activities such as urbanization and tourism, particularly in peri-urban areas of the basin.

4.2.3. *4.2.3. Institutionality: Configuration of Behavior* Predominance of Informal Institutions

Figure 3 presents the code coverage of the construct Institutionality. INST_INF reaches 96% coverage (23 out of 24 interviews), indicating an almost universal presence in the discourse of the actors, while INST_FOR presents 92% coverage, but with significantly lower frequency (157 vs. 376 mentions).

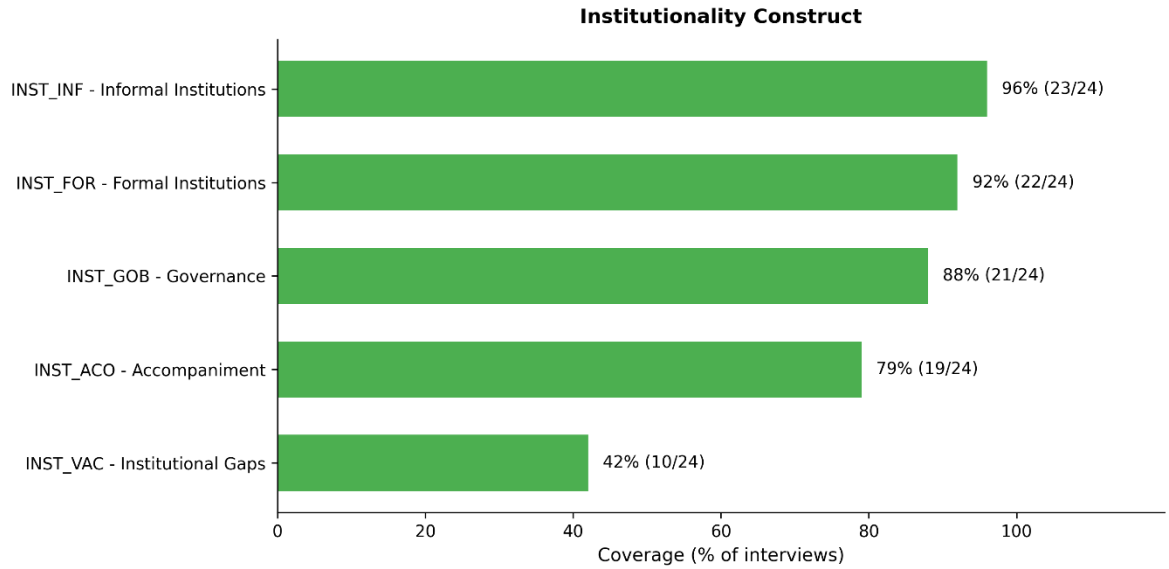

Figure 3 Coverage of codes of the construct Institutionality (percentage of interviews, n=24).
Source: own elaboration.

Analysis of the segments coded as INST_INF allowed us to distinguish four categories of informal institutions. The categories are not mutually exclusive: a single segment may contain, for example, values and trust simultaneously, so the frequencies per category are not additive with respect to the total number of INST_INF segments.

Shared values (288 mentions, 77% of INST_INF): These constitute the core of the informal institutional framework. The values of hard work, honesty, and family commitment were repeatedly invoked as regulators of behavior, operating as functional substitutes for formal contracts.:

"The milkman is an early riser, hardworking, and honest. You can't let down the person who buys your milk because your word is your bond." (E11, medium-sized producer)

- • **Trust (142 mentions, 38%):** Trust relationships based on reputation and shared history emerge as a central mechanism for economic coordination, allowing transactions without written contracts:
  "We've been working with Don Carlos for 20 years. We've never had a contract, but he knows I deliver and I know he pays me." (E08, small producer*)*

  • **Tradition/Heritage (125 mentions, 33%):** Productive knowledge is transmitted intergenerationally through observation and practice, constituting a tacit, unformalized cognitive capital:
  "This comes from my dad, from my grandfather… you learn by seeing, by doing. There's no university that can teach you this" (E02, small producer))

  • **Dairy identity (78 mentions, 21%):** This emerged inductively as a distinctive category. Beyond being an occupation, being a "dairy farmer" constitutes a cultural identity that shapes a sense of belonging and pride:
  "I am proud to be a dairy farmer. This is tradition, it's culture, it's who we are" (E06, small producer))

Triangulation with observation: 100% of the farms observed showed evidence of practices based on custom and trust, corroborating the prevalence of informal institutionality in the regulation of daily behavior.

Formal Institutions: Selective Presence

The INST_FOR code (157 mentions, 92% coverage) reveals a selective and differentiated relationship with formal institutions. Actors do not reject formal regulations *per se*; rather, they selectively adopt those perceived as beneficial while resisting those considered bureaucratically burdensome. The compositional quality payment scheme (Resolution 017 of 2012) emerged as a recurrent formal institution, as it aligns economic incentives with quality-oriented practices.

In participants' narratives, some referred to it using alternative labels (e.g., "Resolution 077"), associating it with the shift toward fat/protein-based payments: "Resolution 077 changed the way we see milk… now you worry about fat and protein because that's what gets paid" (E15, medium-scale producer).

By contrast, the adoption of formal certifications such as Good Livestock Practices (GLP) remains limited, as they are perceived as a bureaucratic burden that does not generate proportional returns:
"Those GLP requirements involve too much paperwork. I comply with everything, but getting certified is a different story" (E13, medium-scale producer).

Triangulation with observation: This selectivity was empirically confirmed: only 50% of the farms observed displayed visible certifications, while 100% reported compliance with basic sanitary practices. Producers implement what regulations prescribe without necessarily formalizing it, revealing a gap between substantive compliance and formal compliance.

Formal Institutions: Selective Presence

The INST_FOR code (157 mentions, 92% coverage) reveals a selective and differentiated relationship with formal institutions. Actors do not reject formal regulations *per se*; rather, they selectively adopt those perceived as beneficial while resisting those considered bureaucratically burdensome. The compositional quality payment scheme (Resolution 017 of 2012) emerged as a recurrent formal institution, as it aligns economic incentives with quality-oriented practices.

In participants' narratives, some referred to it using alternative labels (e.g., "Resolution 077"), associating it with the shift toward fat/protein-based payments: "Resolution 077 changed the way we see milk… now you worry about fat and protein because that's what gets paid" (E15, medium-scale producer). By contrast, the adoption of formal certifications such as Good Livestock Practices (GLP) remains limited, as they are perceived as a bureaucratic burden that does not generate proportional returns:

"Those GLP requirements involve too much paperwork. I comply with everything, but getting certified is a different story" (E13, medium-scale producer).

Triangulation with observation: This selectivity was empirically confirmed: only 50% of the farms observed displayed visible certifications, while 100% reported compliance with basic sanitary practices. Producers implement what regulations prescribe without necessarily formalizing it, revealing a gap between substantive compliance and formal compliance.

The Cooperative Model as a Governance Mechanism

The INST_GOB code (155 mentions, 88% coverage) highlights the central role of cooperativism as a governance structure that articulates actors across the value chain. Cooperatives were not conceptualized merely as commercialization channels, but rather as institutions that provide services, representation, and a sense of belonging:

"Being part of the cooperative is what has sustained us… on our own we wouldn't be able to compete" (E01, small-scale producer).

An emergent finding of relevance was democratic participation (154 mentions), which positions cooperatives as spaces for the co-creation of decisions rather than merely arenas for economic transactions:

"In the cooperative, you have a voice—you can express your opinion. In the assembly, you vote, and decisions are made collectively" (E09, cooperative member).

Triangulation with observation: Eighty percent of the farms observed showed evidence of active associativity (presence of cooperative inputs, informational materials, and reported participation in assemblies), corroborating the centrality of the cooperative model in the organization of the sector.

4.2.4. *Competitive Advantage: Strategies and Sustainability*

Family Structure as a Cost Advantage

The most significant and theoretically relevant finding within this construct emerged inductively: family structure as the primary source of cost advantage (347 mentions, the most frequent emergent theme in the entire study). This finding was not anticipated in the initial theoretical framework derived from the strategy literature.

Small-scale producers explicitly articulate family labor as a mechanism of economic survival that enables them to compete despite lacking scale:

"We work as a family; we don't pay employees… that allows us to survive when prices are low" (E02, small-scale producer).

"My wife helps me with milking, and the children help on weekends. Without that, I wouldn't make it" (E04, small-scale producer).

This finding directly contrasts with Porterian cost leadership theory, which assumes economies of scale as the foundation of competitive advantage. In this context, scale is replaced by a different logic: the non-monetization of family labor reduces operating costs in a way that compensates for the absence of scale efficiencies.

Triangulation with observation: Fifty percent of the farms observed displayed clearly differentiated family roles (spouse involved in morning milking, children assisting with weekend tasks, and older adults engaged in supervision), corroborating the centrality of family structure in productive organization.

Differentiation by Origin and Quality

The VC_DIF code (205 mentions, 100% coverage) highlights differentiation strategies articulated around two main axes: compositional quality and geographical origin. Producers invoke distinctive territorial characteristics as sources of differentiation:

"Milk from here, from Northern Antioquia, is the best in Colombia. The climate, the pastures—everything has an influence" (E14, medium-scale producer)

This narrative of territorial differentiation suggests potential for denomination-of-origin strategies, although it currently operates more as an identity-based discourse than as a formal market positioning mechanism.

Threats to Sustainability

The VC_SOST code (164 mentions, 100% coverage) revealed widespread concerns regarding the sustainability of dairy farming activities. The analysis identified two structural threats that emerged with particular intensity:

Trade liberalization – FTA (45 mentions): The tariff dismantling projected for 2026 under the Free Trade Agreement (FTA) with the United States generates uncertainty and a perception of vulnerability in relation to subsidized competitors:

"When milk from the United States enters in 2026, what will happen to us? They have subsidies; we don't" (E15, medium-scale producer).

Generational succession crisis (38 mentions): The absence of successors willing to continue the activity threatens the continuity of family-based production units:

"My concern is what will happen when I can no longer work. The children don't want to continue with this" (E06, small-scale producer).

Triangulation with observation: The succession crisis was empirically confirmed: only 40% of the farms observed had young people actively involved in productive activities, while another 40% showed no youth presence at all. This finding, combined with the previously reported rural labor shortage, constitutes a structural threat to the sustainability of the production system**.**

Analysis of Associations Between Codes

Code co-presence was examined at the interview level (document-level), that is, the joint appearance of codes within the same case. This metric allows for the identification of patterns of discursive association between categories without inferring causality. Figure 4 presents a co-presence matrix among the 15 theoretical codes (n = 24).

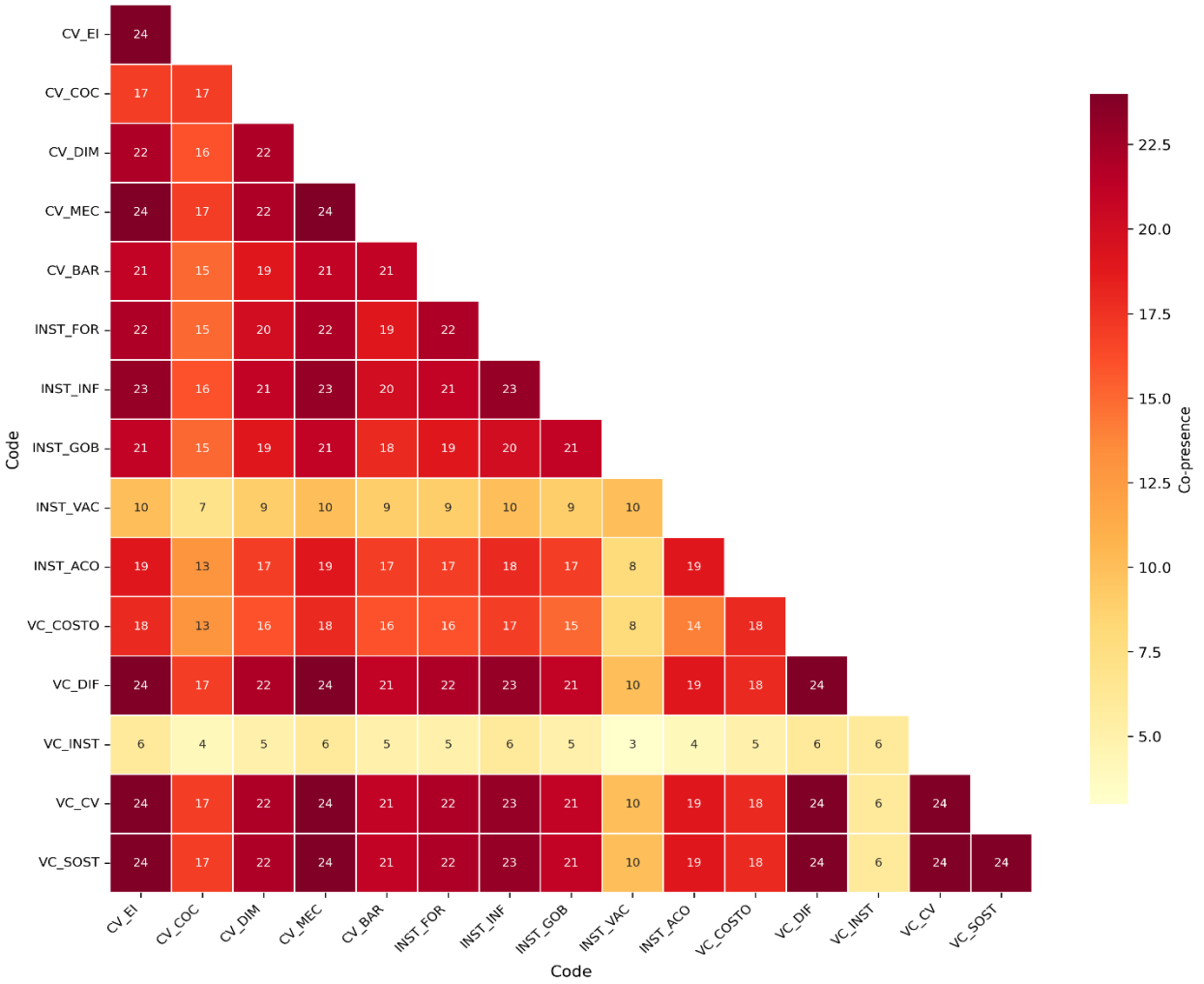

Figure 4. Co-presence matrix by interview among theoretical codes (n = 24).
Source: Own elaboration

Table 5. Aggregated co-presence between constructs (sum of interview-level co-presences between code pairs).

Relationship	Aggregated co-presence	Interpretation
CV ↔ INST	441	The institutional framework shapes value creation practices
CV ↔ VC	438	Value creation (VC) generates competitive advantage.
INST ↔ VC	388	Institutions influence value creation (VC).

The three inter-construct relationships show comparable intensities. The values reported in Table 5 correspond to the sum of interview-level co-presences between pairs of codes belonging to different constructs (theoretical maximum: 25 pairs × 24 interviews = 600). This result supports an integrated analytical system, although with differentiated patterns when examined at the level of specific codes.

1. **INST_INF ↔ CV_MEC (high association):** Value creation practices are often explained alongside their grounding in tradition, custom, and trust.
2. **INST_GOB ↔ CV_COC (high association):** Co-creation appears strongly linked to cooperative arrangements and mechanisms of collective coordination.
3. **CV_DIM ↔ INST_FOR (moderate association):** Formal rules, particularly quality-based payment schemes, shape which value dimensions are prioritized..

Relationships Between Constructs

Based on the co-presence analysis and the interpretive reading of the segments, a relational model between constructs was derived (Figure 5).

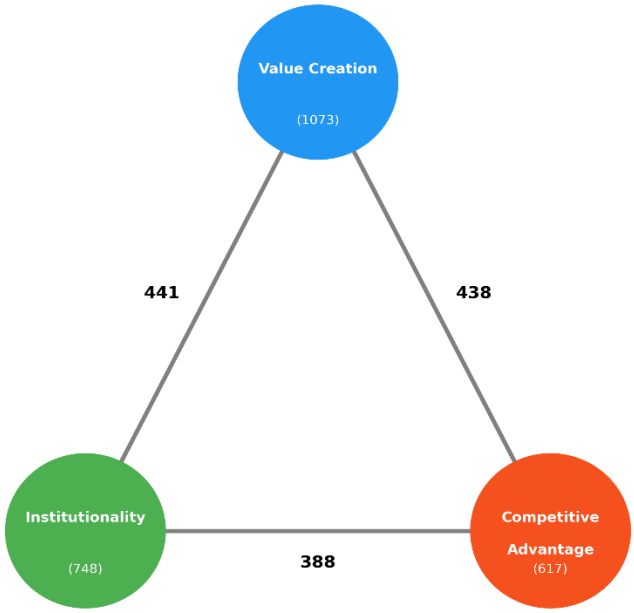

Figure 5. Relationships between constructs based on aggregated co-presence between code pairs (n = 24).
Source: Own elaboration.
Note: Weights represent the sum of interview-level co-presences between code pairs belonging to different constructs (n = 24).

The emergent model suggests four propositions regarding the relationships between constructs:

1. **Informal institutions** (tradition, trust, values) constitute the foundation upon which value creation practices are built. They operate as tacit enabling conditions that actors do not question.
2. **Formal institutions** (rules, certifications) guide, but do not determine, value creation. Their influence is selective and mediated by their perceived compatibility with the pre-existing informal institutional framework.
3. **Value creation** generates competitive advantage, but this relationship is mediated by tacit knowledge and trust-based relationships that are difficult for external actors to replicate.
4. **The cooperative model** acts as an institutional articulator, providing a space where formal institutions (statutes, quality standards) and informal institutions (trust, reciprocity) coexist and are negotiated.

Synthesis of Emergent Findings

A distinctive contribution of directed qualitative content analysis lies in its ability to identify phenomena not anticipated in the initial theoretical framework. The inductive coding process identified 10 emergent themes that enrich the understanding of value creation and institutionality in this context (Table 6).

Table 6. Emergent themes identified during inductive coding

Theme	Frequency	Construct	Theoretical Relevance
Family structure as an advantage	347	VC	Challenges scale theory
Values (hard work, honesty)	288	INST	Dominant informal institution
Time/Continuity	206	CV	Emergent value dimension
Democratic participation	154	CV/INST	Co-creation within cooperatives
Labor shortage	85	CV	Structural barrier
Dairy identity	78	INST	Cultural capital
Resistance to change	73	INST	Institutional barrier
Animal welfare	67	CV	Ethical dimension
Climate variability	67	CV	Contextual barrier
Generational succession	38	VC	Sustainability threat

These emergent findings represent empirically significant phenomena that the dominant literature has not yet sufficiently theorized. Family structure as a source of advantage (347 mentions) and values as a dominant informal institution (288 mentions) are particularly relevant due to their frequency and their potential to enrich existing theoretical frameworks.

DISCUSSION

This section interprets the findings in light of the proposed integrative framework (institutionality, value creation, and competitive advantage) and situates them within the international debate on traditional agro-industrial chains in emerging economies. Rather than reiterating the results, the discussion focuses on their theoretical and practical significance, emphasizing explanatory mechanisms, tensions between formal and informal institutions, and the role of the cooperative model as a hybrid institutional arrangement.

Theoretical Contributions

Predominance of Informal Institutions

The most consistent finding is the predominance of informal institutions over formal ones (376 vs. 157 codifications; ratio 2.4:1), suggesting that the chain's day-to-day coordination is primarily grounded in traditions, interpersonal trust, reputation, and shared values rather than codified rules. This pattern does not imply the absence of formal institutions; rather, it indicates that compliance and coordination are achieved through a "social infrastructure" that operates as a mechanism of enforcement and uncertainty reduction within the territory.

This result converges with institutional theory by recognizing that, in contexts where formal arrangements are costly, incomplete, or perceived as poorly adapted to local dynamics, actors rely on informal institutions to sustain stable exchanges (North, 1990; Scott, 2014). From this perspective, trust is not a marginal "cultural" attribute but an organizational resource that enables transactions and cooperation, defines quality expectations, and shapes decisions regarding investment and continuity.

The evidence also points to a selective interaction between the formal and the informal. Producers do not reject formal institutions outright; rather, they adopt rules and requirements when these integrate seamlessly with naturalized practices or when they are perceived as necessary to maintain commercial relationships. This selectivity aligns with the concept of institutional bricolage, understood as the practical recombination of normative and cultural resources to address constraints and solve problems under conditions of limitation (Mzembe et al., 2019, p. 562).

In this regard, the gap between "substantive compliance" and "formal compliance" emerges as a relevant contribution: actors may report adherence to standards and good practices, while visible formalization (e.g., certifications, records) appears partial or intermittent. This gap is consistent with the notion of institutional voids, in which formal market supports are incomplete or do not operate with the same effectiveness as informal mechanisms (Lashitew et al., 2020). The theoretical implication is that the analysis of agro-industrial chains must recognize that part of real governance occurs "off the record," through socially legitimized agreements and expectations.

Theoretical Implications of the 2.4:1 Ratio

The informal-to-formal institution ratio of 2.4:1 (376 vs. 157 codifications) warrants deeper theoretical examination. This finding resonates with Helmke and Levitsky's (2004) typology of informal institutions, which distinguishes between complementary, accommodating, competing, and substitutive relationships with formal rules. In the Northern Antioquia dairy basin, informal institutions appear to operate primarily in a complementary and accommodating manner: they fill gaps where formal mechanisms are absent or perceived as inadequate, while simultaneously enabling substantive compliance with regulations even when formal certification remains incomplete.

This pattern challenges the implicit assumption in development policy that formalization necessarily improves economic outcomes. Our evidence suggests that in contexts of strong informal institutional density, formalization efforts that disregard existing trust networks and traditional arrangements may encounter resistance or produce merely symbolic compliance what scholars have termed "decoupling" between formal structures and actual practices (Meyer & Rowan, 1977). The gap between substantive compliance (100% of observed farms following sanitary practices) and formal compliance (only 50% displaying visible certifications) illustrates this phenomenon empirically.

Furthermore, the predominance of shared values (288 mentions, 77% of INST_INF) as the core of informal institutionality suggests that economic coordination in this context operates through what Scott (2014) terms the cultural-cognitive pillar of institutions. Producers do not simply follow rules; they enact identities and reproduce meanings that define what it means to be a "dairy farmer" in this territory. This identity-based compliance mechanism has implications for policy design: interventions that threaten occupational identity may face stronger resistance than those targeting merely economic incentives.

Emergent Value Dimensions

A second contribution of the study is the identification of value dimensions that transcend dominant technical-productive attributes. In particular, the emergence of time/continuity as a value dimension suggests that, for actors, value is not exhausted by price or punctual quality but is instead constructed through relational stability, income predictability, and operational continuity over time. This interpretation is better understood through the distinction between value-in-exchange and value-in-use, as continuity expresses accumulated benefits that materialize through sustained relationships (Vargo & Lusch, 2016). In traditional chains where climate risk, cost volatility, and the fragility of generational succession place pressure on the activity continuity functions as a "relational insurance," reducing uncertainty and enabling planning decisions that would be unfeasible if exchange were purely transactional.

Moreover, the identification of animal welfare as a value dimension indicates the incorporation of ethical criteria that resonate with social expectations and contemporary narratives of legitimacy and sustainability. From an expanded social value creation perspective, this result is consistent with the idea that value is distributed among actors and stakeholders and is not limited to immediate economic benefits (Lashitew et al., 2020).

Complementarily, the high salience of dairy identity (78 codifications) and values (288 codifications) indicates that value is also anchored in meaning and a sense of belonging. In institutional terms, this reinforces the idea that the institutional environment includes systems of meaning that define what is considered appropriate and legitimate, and that practices are sustained through processes of social acceptance and reproduction (Klafke et al., 2021, p. 3). Taken together, this evidence suggests that measuring value solely through technical indicators may underestimate the relational and symbolic mechanisms that sustain coordination and performance in family-based systems.

Alternative Sources of Competitive Advantage

The third high-impact finding is the identification of family structure as the primary source of cost advantage (347 codifications) and as a mechanism of organizational resilience. This result challenges explanations centered exclusively on economies of scale and suggests that, in family-based systems, competitiveness may derive from domestic arrangements that reorganize labor, distribute roles, and reduce monetary costs. This pattern.

Likewise, the relevance of tacit knowledge as a foundation of competitiveness (associated with competitive advantage in 388 INST↔VC co-presences) reinforces the view of knowledge as a strategic resource. Knowledge transmitted through practice and experience difficult to codify and transfer becomes a barrier to imitation and a component of the sustainability of competitive advantage (Grant, 1996).

Finally, the finding nuances the relationship between informality and competitiveness. Informal institutions may enable advantages (e.g., rapid coordination based on trust), but they can also generate constraints when they legitimize resistance or limit the incorporation of improvements. Therefore, competitive advantage in these systems should be understood as a situated capability, shaped by the institutional environment and by the way actors articulate productive, domestic, and relational resources (North, 1990; Scott, 2014).

Conceptualizing "Economies of Family Scope"

The emergence of family structure as the primary source of cost advantage (347 codifications) invites theoretical elaboration beyond the Chayanovian framework of peasant self-exploitation. We propose the concept of "economies of family scope" to describe how domestic arrangements generate competitive advantages through mechanisms distinct from conventional economies of scale.

Three mechanisms underpin economies of family scope in this context:

1. Labor flexibility and non-monetization: Family labor operates under a different logic than wage labor. Tasks are distributed according to capability and availability rather than contractual obligations, and labor costs do not appear as explicit monetary expenditures. This flexibility allows production to continue during periods of price depression that would render wage-based operations unviable.

2. Intergenerational knowledge transfer: Tacit knowledge embedded in family routines regarding animal behavior, pasture management, seasonal patterns constitute a cognitive resource that is transmitted through observation and practice rather than formal training. This knowledge is difficult to codify and, consequently, difficult for competitors to imitate (Grant, 1996).
3. Risk distribution across the household: Family units distribute productive risk across multiple activities and income sources, including off-farm employment by some family members. This portfolio approach to household livelihood provides resilience that specialized commercial operations may lack.

These mechanisms suggest that competitive advantage in family-based systems emerges from the interface between productive and reproductive spheres a domain that mainstream strategy literature, with its focus on the firm as the unit of analysis, has largely overlooked. Future research should explore whether economies of family scope can be intentionally strengthened through policy interventions that support household diversification and intergenerational continuity.

Value Co-creation in the Cooperative Model

A fourth cross-cutting finding is the role of the cooperative model as a platform for value co-creation and as a mechanism of institutional articulation. Co-creation is not expressed solely through shared productive practices, but also through the integration of resources, rules, and services that sustain exchange and reduce risks along the value chain. From the service-dominant logic perspective, co-creation occurs when multiple actors integrate resources to generate reciprocal benefits (Vargo & Lusch, 2016). In this study, democratic participation (154 codifications) and the provision of services and support emerge as mechanisms that expand producers' capabilities and stabilize relationships within the territory.

Additionally, the findings suggest that the cooperative operates as a "hybrid arrangement" in which formal and informal institutions mutually reinforce one another. On the one hand, it introduces rules, standards, and procedures; on the other, it is sustained by trust, identity, and reciprocity that facilitate compliance. This assemblage contributes to closing institutional voids and reducing coordination costs in contexts where formal support mechanisms may be insufficient (Lashitew et al., 2020; Mzembe et al., 2019). In theoretical terms, the study contributes to the debate on cooperativism by showing that its value is not only economic but also institutional: it produces "institutionalized relational value," that is, benefits emerging from shared rules and sustained relationships that enable quality, continuity, and legitimacy. This aligns with the idea that systems of meaning and culturally accepted.

Implications for Practice and Policy

The findings have implications for producers, cooperative organizations, and policymakers. For producers, they suggest that formalization should be approached as a gradual process compatible with local practices: interventions that ignore informal institutions may generate resistance or merely symbolic compliance. By contrast, strategies that build on existing trust and translate it into simple mechanisms for record-keeping and traceability can improve performance without eroding legitimacy (North, 1990; Scott, 2014). For cooperatives and institutional actors, the findings highlight their potential as institutional infrastructures that reduce uncertainty, facilitate learning, and enable co-creation. Technical and organizational support programs should explicitly incorporate emergent value dimensions (continuity, animal welfare, occupational identity) as adoption levers, rather than focusing exclusively on technical indicators (Vargo & Lusch, 2016; Lashitew et al., 2020).

For public policy, the study suggests that closing formalization gaps does not depend solely on increasing regulatory requirements, but rather on strengthening local capacities and arrangements that allow formal mechanisms to "make sense" within the territory. In environments characterized by institutional voids, reinforcing compliance mechanisms based on reputation and networks (e.g., associative verification and learning schemes) may be more effective than exclusively punitive approaches (Lashitew et al., 2020).

Limitations and Future Research Agenda

This study presents limitations that delimit the scope of transferability. First, its geographic concentration in Northern Antioquia implies that the findings should be interpreted as situated knowledge; dairy chains with different institutional configurations or a weaker cooperative presence may exhibit distinct patterns. Second, the evidence is based on narratives and observations collected within a specific period; regulatory, market, or climatic changes could alter the dynamics identified.

These limitations open a future research agenda in four directions. First, comparative studies across dairy basins would allow for the assessment of variations in formal–informal interactions and in the role of cooperativism.

Second, longitudinal research could capture how institutions and value are reconfigured under external pressures (e.g., trade liberalization and technological change). Third, multi-actor analyses that more systematically incorporate processors, marketers, and regulatory entities would broaden the understanding of the ecosystem. Finally, methodological developments that combine qualitative analysis with performance metrics could explore how emergent value dimensions relate to productive and organizational outcomes without reducing their interpretive complexity.

Additionally, the methodological choice of directed content analysis, while appropriate for theory-testing and extension, may have constrained the identification of entirely novel categories not anticipated by the initial deductive framework. Although ten emergent themes were identified inductively, a fully grounded approach might have surfaced additional phenomena. Future research employing constructivist grounded theory could complement these findings by prioritizing emergence over verification.

CONCLUSIONES

This study examined value creation practices and institutional configurations within the dairy value chain of Northern Antioquia through an interpretive approach and directed content analysis, integrating interviews and observation. The findings show that value creation in family-based agro-industrial systems cannot be understood solely through technical-productive indicators; it is deeply embedded in institutional arrangements, trust-based relationships, and shared meanings that structure everyday coordination.

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Main Findings and Contributions

First, the predominance of informal institutions over formal ones (376 vs. 157 codifications; 2.4:1) demonstrates that the chain's real governance largely operates through trust, tradition, and shared values, functioning as mechanisms of coordination and compliance within the territory (North, 1990; Scott, 2014). This result provides empirical evidence to the debate on institutionality in emerging economies and suggests that informality acts as an operational infrastructure rather than as a peripheral element.

Second, the study identifies emergent value dimensions (particularly time/continuity and animal welfare) that broaden the understanding of value toward a processual and relational logic. These dimensions are interpreted as expressions of value-in-use and as components of social value creation, relevant to system stability and the legitimacy of the activity (Vargo & Lusch, 2016; Lashitew et al., 2020).

Third, family structure emerges as an alternative source of competitive advantage in terms of cost and resilience (347 codifications), while tacit knowledge strengthens the sustainability of this advantage due to its difficulty of imitation (Chayanov, 1925; Grant, 1996). This finding repositions the discussion of competitiveness in traditional value chains: advantage may originate from domestic arrangements and embedded capabilities, rather than solely from scale or visible technology.

Fourth, the cooperative model is characterized as a hybrid institutional space that articulates formal and informal rules and enables value co-creation processes, reducing uncertainty and closing institutional voids through collective mechanisms (Vargo & Lusch, 2016; Lashitew et al., 2020; Mzembe et al., 2019). This contribution emphasizes cooperativism as an institutional and relational infrastructure that sustains value chain coordination.

Implications and Closing Remarks

In practical terms, the findings suggest that strategies aimed at improving competitiveness and sustainability should be designed based on existing institutional arrangements, leveraging networks of trust and social legitimacy to facilitate the adoption of practices and standards. For public policy, the study highlights that strengthening local capacities and associative arrangements can be as important as adjusting regulations, particularly in contexts were informality structures everyday economic activity.

In summary, this work demonstrates that value creation in traditional agro-industrial chains is inseparable from the institutional framework that shapes it. Understanding this articulation helps explain why certain practices persist, how situated competitive advantages are constructed, and what types of interventions are more likely to be effective and legitimate in rural territories within emerging economies.

Declarations

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Author Contributions (CRediT)

Jackeline Andrea Macías Urrego: Conceptualization, Methodology, Investigation, Writing – Original Draft, Writing – Review & Editing, Supervision, Project Administration.

Jaime Andrés Ararat Herrera: Investigation, Data Curation and Analysis, Formal Analysis, Visualization, Writing – Review & Editing.
Luz Alexandra Montoya Restrepo: Validation, Advisory Support, Writing – Review & Editing.

Data and Materials Availability
The datasets generated during the present study are available from the corresponding author upon reasonable request. Interview transcripts cannot be publicly shared to protect participant confidentiality. The data will be retained for five years in accordance with institutional guidelines.

Conflict of Interest
The authors declare that there are no known financial interests or personal relationships that could have influenced the work reported in this article.

Ethical Approval and Consent to Participate
The study received approval from the Ethics Committee of the Universidad Nacional de Colombia, Medellín Campus (Agreement 02 of 2007; Agreement 95 of 2021), granted during the session held on September 24, 2025 (Minutes 13) for the project "Analysis of the influence and relationship between value creation and institutionality in the agro-industrial value chain, contributing to the generation of competitive advantages." All participants provided written informed consent prior to participation. Anonymization (E01–E24) and secure data protection were ensured through encrypted storage with restricted access.

Consent for Publication
All participants consented to the publication of anonymized quotes and data.

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Declaration on Generative AI and AI-Assisted Technologies
During the preparation of this work, the authors used Google Gemini and ChatGPT 5.2 to verify compliance with journal guidelines, as well as citation and reference formatting, and to improve the readability and language of the manuscript. After using these tools, the authors reviewed and edited the content as necessary and assume full responsibility for the content of the article.

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