

RESEARCH ARTICLE

Research on the impact mechanisms of institution-oriented human resource management systems on employee group psychology in dairy enterprises: A case study of regional representative dairy enterprises

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ABSTRACT

Purpose: The current study explores the impact mechanisms of institution-oriented human resource management (HRM) systems on employee group psychology in dairy enterprises, with specific focus on the interactions between both formal and informal institutions in different regions in China. **Methods:** A comparative case study approach was used to explore three typical dairy enterprises in the eastern, central, and western regions. The process of gathering data included in-depth interviews with more than 60 participants, participatory observation, and document analysis. Template analysis was used to identify patterns and underlying mechanisms across the cases. **Results:** The study findings identify three mechanisms through which institutions shape employee psychological responses: convergence in the east, whereby formal and informal institutions create standardized psychological expectations and organizational identity; complementarity in the center, whereby regulated compliance and cultural adaptation coexist; and adaptation in the west, whereby informal institutions moderate the lack of formal regimes. Institutional action takes place within the context of regulatory limits and resource allocation to formal institutions, and informal institutions influence practices through social networks and cultural norms. The regional differences reflect deeper differences in economic development, historical context, and resource endowments. **Conclusion:** Institutional environments create systematic differences in employee psychological responses through multidimensional mechanisms. The psychological impact of dairy enterprise HRM systems cannot be evaluated using universal standards but must consider how institutional contexts shape employee mental models, organizational identification, and group dynamics. Different institutional combinations produce distinct management ecosystems, each with unique advantages and constraints. **Practical Implications:** Dairy enterprises should design psychologically-informed HRM strategies that consider local institutional contexts and their impact on employee mental health and group dynamics. Policymakers should recognize that psychological adaptation patterns differ across regions and develop institutional frameworks that support employee well-being and organizational identification. Industry associations could develop adaptive HRM frameworks that accommodate institutional diversity while maintaining essential quality standards.

Keywords: institutional environment; employee group psychology; human resource management; dairy enterprises; regional differences; social identity; psychological well-being

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1. Introduction

The Chinese dairy sector has experienced spectacular growth and profound change over the last few decades, with concomitant changes in institutional arrangements that play a key role in shaping management practices at enterprises. This change has involved a shift from small-sized family farms to large commercial-scale agricultural enterprises, posing new human resource management challenges, particularly in the development of efficient management systems that can cope with diverse regional institutional environments^[1]. These changes take place within an extremely diversified institutional environment marked by formal rules and legal norms, in addition to informal cultural norms, both of which interactively shape organizational behaviors and management practices in different regions of the country.

The links between environmental settings and human resource management efficiency have attracted significant research interest. However, understanding gaps remain regarding how institutional environments impact employee psychological well-being and group dynamics. Although institutional theory can provide relevant organizational practice insight into external environment influences^[2], research into specific avenues of institutional environment impacts for human resource management efficiency in agricultural enterprises is comparatively limited. Previous studies have been mainly focused on either institutional settings or human resource management practices separately, thus overlooking broad inter-linkages of their mutual effects on organizational efficiency^[3]. Most of previous writings available concerned with the subject have originated from developed market economies, thus causing significant ambiguity for transitional economies with complicated institutional settings. Recent research has increasingly recognized that institutional environments not only shape management practices but also fundamentally influence employee psychological states, organizational identification, and group behavior^[4,5]. The psychological well-being of employees in agricultural enterprises, particularly in dairy farming, has emerged as a critical factor that mediates the relationship between institutional contexts and organizational outcomes.

The issues related to human resource management in dairy business units are significantly compounded by virtue of the unique characteristics and operational requirements of this industry. Literature suggests that dairy enterprises are confronted with particularly significant challenges in the recruitment of qualified staff, the operation of effective training programs, and establishing sound performance management systems^[6]. In addition, these issues are compounded by differences in institutional contexts across regions, which pose a variety of challenges and opportunities for policy-making processes of human resource management in different locations. These institutional contexts include formal components, such as regulatory systems and administrative systems, as well as government policy, and informal components, such as societal norms, networks, and customary routines that show significant variability, not least on an inter-regional basis^[7].

Contemporary intellectual discussion on strategic human resource management in a Chinese environment stresses the need for more research considering the specific contextual variables emerging from a country's business environment, which holds distinct institutional characteristics^[8]. Most of the literature argues that human resource management practice can't be properly understood or properly executed without considering a superior institutional environment in which organizations function^[9]. Although inquiry exploring Chinese regional institutional differences that directly act on human resource management systems' efficiency is, to a certain extent, still limited, especially concerning dairy farming's agricultural sector, with its traditional methods intertwined with modern requirements for management,

The blending of institutional theory with human resource research offers fruitful points of inquiry for exploring complex interrelationships. Institutional theory argues that organizations adapt their practices of governance to achieve legitimacy and obtain resources in a given institutional environment^[10]. Building upon

this foundation, social identity theory provides a crucial psychological lens for understanding how institutional environments influence employee behavior and attitudes. According to Paruzel et al. (2020), employees derive their self-concept partially from organizational membership, and institutional contexts shape these identification processes^[11]. The theory suggests that formal and informal institutions create different identity salience patterns, influencing employee psychological attachment and group dynamics^[12]. This theoretical approach makes possible an investigation of various institutional settings that create different psychological climates and identity formation processes, ultimately influencing how employees perceive, interpret, and respond to human resource management systems through their psychological contracts and social identification mechanisms. Both formal and informal institutional aspects of this theoretical approach are particularly relevant for understanding the Chinese environment, where high-speed economic growth has developed institutional settings combining new regulating structures with persistent traditional features.

The current research endeavors to remedy past lacks using regionally representative enterprises as empirical evidence to explore how regionally diverse institutional settings influence employee group psychology, organizational identification, and psychological well-being in dairy business human resource management systems. Based on its researched goal, this academic piece aims to explicate institutional settings' specific mechanisms for affecting human resource management practices as well as explore institutional settings' inter-region differences as a motivating factor for various forms of management systems' efficiency. This research examines the relationship between institutional settings and organizational practices in dairy enterprises across diverse regions.

The current study enriches institutional theory further by integrating it with organizational psychology perspectives, specifically exploring how institutional environments shape employee mental models, group dynamics, and psychological adaptation processes in dairy enterprises where such psychological mechanisms have not been systematically investigated. This study further enriches understanding of macro-level institutional circumstances' impact on micro-level organizational outcomes and practices. At a practical level, this research provides dairy enterprises with insights into how to foster positive employee psychological climates and enhance organizational identification within particular institutional settings, in addition to offering policymakers recommendations for building institutional frameworks that support employee mental health and psychological well-being in agricultural organizations.

The research uses a comparative case study approach to explore prominent dairy enterprises located in diverse regional institutional contexts, with the purpose of examining the interrelations between these institutional structures and the efficiency of human resource management systems. This research design enables an in-depth exploration of psychological processes that are by nature intricate, as well as permitting cross-case analysis that can potentially reveal basic patterns of how institutional mechanisms influence employee group psychology, organizational identification, and collective behavioral responses. Case studies are well-suited for organizational phenomena exploration since they take place in actual contexts, particularly in situations where settings and phenomena are not easily distinguished^[13].

2. Research methods

2.1. Research design

The current study uses a comparative case study approach to explore the impact of institutional settings on human resource management systems' efficiency in dairy business organizations. Such a research design is especially appropriate for studying complex organizational phenomena in real-world settings, particularly when faced with modern challenges with blurry lines between researched phenomenon as well as contextual

variables^[13]. Through this research design, The follow conventional organizational research requirements, which stipulate that case studies are especially informative for generating theoretical insights as well as exploring causal mechanisms embedded in organizational complexity^[14].

The research uses exploratory and inductive methods, making theoretical interpretations from empirical evidence but not testing well-developed hypotheses. Such an approach corresponds to methodological orientations favorable for research into institutional theory-based research that would allow understanding of the effects of external pressures on organizational behavior using an integrated analysis of specific settings^[15]. Such a comparative approach facilitates cross-case analysis that can reveal both general trends as well as context-specific variations of institutional environment effects on human resource practices in various regional settings.

The ethical considerations involved in this research design are significant. Permission was sought and received from the appropriate institutional review board, thus ensuring that all participants provided informed consent after strict confidentiality procedures. Both business scenarios and individual respondents are anonymized to protect their identities through the use of pseudonyms in the process of data collection and reporting. The current research conforms to recognized ethical codes applicable to organizational research, especially regarding access to confidential organizational data and employee perspectives^[1].

Figure 1 presents a research model that brings together the relationship between institutional factor-based variables and human resource management system efficiency, especially through the lens of a regionally representative dairy firm.

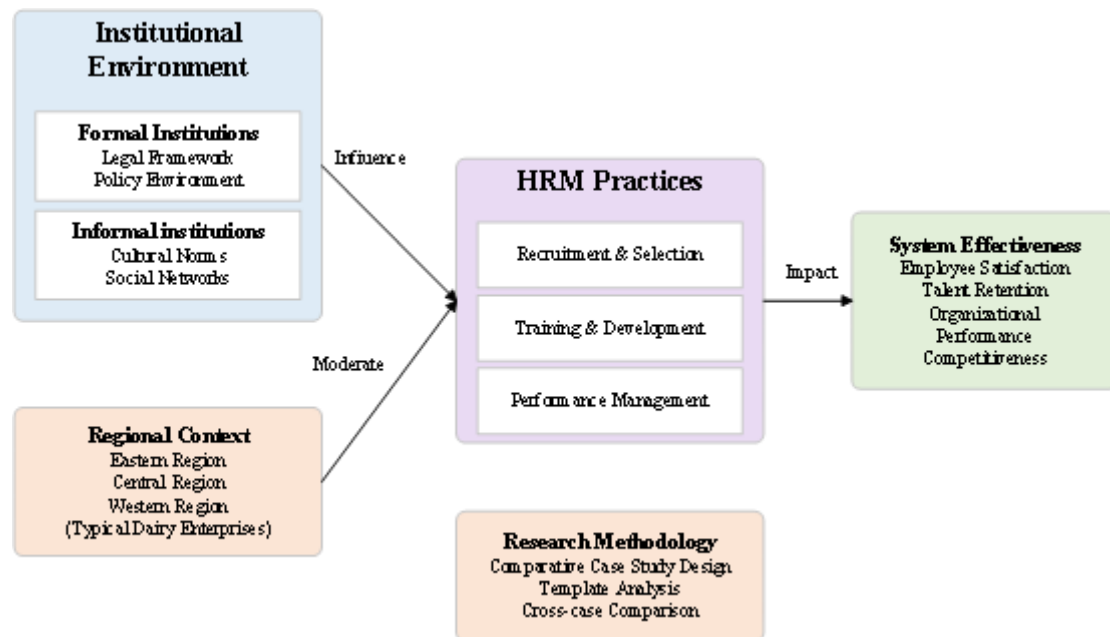


Figure 1. Research framework: Institutional environment and employee group psychology.

2.2. Case enterprise selection

The case enterprise selection procedure follows systematic criteria to ensure representativeness and facilitate meaningful cross-case analysis. Three dairy enterprises were selected from different regional settings in China, each representing distinctive institutional settings and varying levels of development. The selection criteria include regional representativeness, enterprise typicality, and data availability, consistent with standard procedures in comparative organizational case selection protocols^[13]. The selection of these

three enterprises ensures representativeness across China's institutional gradient. The eastern, central, and western regions demonstrate systematic differences in marketization levels, regulatory development, and resource availability that create fundamentally distinct operational contexts. Enterprise A operates within the eastern region's mature market mechanisms and comprehensive regulatory frameworks, representing the institutional environment of China's most developed dairy markets. Enterprise B functions in the transitional institutional setting characteristic of central provinces, where traditional practices coexist with modernizing regulations. Enterprise C navigates the western region's resource-constrained environment where informal institutions remain dominant. These enterprises also represent typical market positions within their respective regional dairy industries - Enterprise A as a large-scale market leader, Enterprise B as a medium-sized competitor, and Enterprise C as a small-to-medium enterprise. This positioning captures the mainstream organizational experiences within each institutional context rather than exceptional cases.

Table 1 outlines the main characteristics of the selected case enterprises, which represent organizational diversification and provide a basis for investigating impacts of differences in institutional environments on human resource management practices.

Table 1. Case enterprise characteristics.

Enterprise	Region	Ownership	Scale	Employees	Establishment	Main Products
Enterprise A	Eastern (Developed)	State-owned	Large	800+	1990s	Fresh milk, Yogurt, UHT milk
Enterprise B	Central (Developing)	Private	Medium	300-400	2000s	Fresh milk, Cheese, Dairy powder
Enterprise C	Western (Less developed)	Private	SME*	150-200	2010s	Fresh milk, Traditional dairy

Note: SME = Small and Medium-sized Enterprise

Enterprise A represents the scenario of the developed eastern region that is characterized by mature market mechanisms, elaborate legal systems, and abundant human capital. As a state-owned enterprise, it operates under formal institutional contexts that emphasize standardization and respect for the law. In contrast, Enterprise B, located in the central developing region, is operating in a transitional institutional environment where market mechanisms are combined with administrative coordination. Enterprise C, which is in the western less developed region, faces institutional constraints related to resource shortages and inherited cultural issues, while at the same time adapting to modern management requirements.

The geographical location of targeted enterprises allows for an evaluation of regional institutional differences' impact on strategies related to human resource management. Eastern region locations tend to be more advanced in terms of market institutions, human capital is higher, as well as more compatible with global practices^[7]. Central provinces are often a blend of institutional characteristics, with both traditional and modern-style management systems. Western provinces tend to retain strong traditional cultural beliefs alongside simultaneously adopting more modern methods of management^[10].

2.3. Data collection and presentation

Data collection makes use of multiple sources as well as methods to ensure a broad understanding of the research phenomenon as well as to enrich validity of results through triangulation^[16]. Data collection strategy combines in-depth interviews, participant observation, document analysis, as well as secondary sources of data to capture both explicit as well as implicit aspects of human resource management practices of their institutional settings. **Table 2** outlines the specific methods of data collection as well as their applications in this research.

Table 2. Data collection methods and sources.

Data Source	Method	Participants/Materials	Purpose	Duration/Quantity
Primary Data	In-depth Interviews	Senior executives, HR managers, Department heads, Employees	Understanding psychological responses and institutional influences on employee well-being	45-90 minutes each (60+ interviews)
Primary Data	Participant Observation	HR processes, Training sessions, Performance reviews	Observing actual practices	2-3 weeks per enterprise
Secondary Data	Document Analysis	Company policies, Training materials, Performance records	Understanding formal systems	100+ documents
Secondary Data	Archival Records	Government reports, Industry statistics, Policy documents	Contextualizing institutional environment	Regional databases

The in-depth interviews are a main source of data, with a systematic compilation of interviews with central stakeholders from diverse organizational levels. These are members of senior management who engage in strategy; HR managers who are responsible for the implementation of HR policies; managers of departments who engage in routines on a day-to-day basis; and non-managers who deal directly with HR practices.

Interviews are semi-structured, with a guide set of core questions, but enough flexibility to explore extra themes as they arise. The examination is particularly concerned with the apprehension of psychological processes mediating between institutional environments and individual behavior, such as processes of identity construction, attachment dynamics, and group dynamic transformations. This psychological lens provides better insights into how institutional contexts influence employee schemata and identification with the organization. Participant observation lends a unique understanding to behavior that occurs in organizations, which can be far removed from what is formally stated or intended. This way of using offers a particularly interesting way to disentangle the impact of the institutional context on the evolution of informal practices as well as the veritable profusion of cultural dynamics that are played out within organizations.

Considering activities, some HR-involved aspects are noteworthy, such as recruitment campaigns, training courses, appraisal meetings for determining behaviors, and employee behaviors in the workplace. The study of sources encompasses internal as well as external sources. To record intranet documents, including policies for personnel, training processes, performance evaluation guidelines, and the structure of the organization. On the contrary, external documentation covers governmental policies, industry conventions, territorial development policies, as well as statements of policies that determine the institutional environment within which organizations operate. The distribution of content is done with stringent confidentiality measures, using careful anonymization methods. Corporate identifiers are replaced with letter designations (e.g., Company A, B, C), whereas respondents receive alphanumeric codes that allow for retention of their relationship with their organizations without compromise of their confidentiality since they don't reveal any identifiable features. Interviews are further treated with translation methods done under a panel of bilingual validators for consistency, thus maintaining content integrity in varying languages.

2.4. Data analysis methodologies

The methodology design is founded on template analysis, a form of thematic analysis appropriate for both deductive as well as inductive coding research methods^[16]. This methodology is especially favorable for a comparative case research design, as it enables an in-depth investigation of common attributes for a wide diversity of cases simultaneously as well as an accommodation of diversity pervading a given environment, thus allowing for an unfolding of unexpected themes. Analytical design followed a systematically structured design, as can be seen from **Figure 2**, with a cyclical incorporation of analytical methods alongside concurrent collection of data.

The numerical indicators presented in the results were derived through systematic coding of qualitative data during template analysis. Interview transcripts and observational notes were coded for psychological dimensions such as organizational identity, satisfaction, and group cohesion. The coding process involved identifying the frequency and intensity of relevant themes across the dataset. For instance, organizational identity scores reflected the proportion of employees expressing strong organizational belonging during interviews - 85% of Enterprise A employees consistently expressed such sentiments compared to 45% in Enterprise C. These proportions were then converted to a 10-point scale to facilitate cross-case comparison. Turnover rates and satisfaction percentages were obtained from company HR records and internal employee surveys conducted as part of routine organizational assessment.

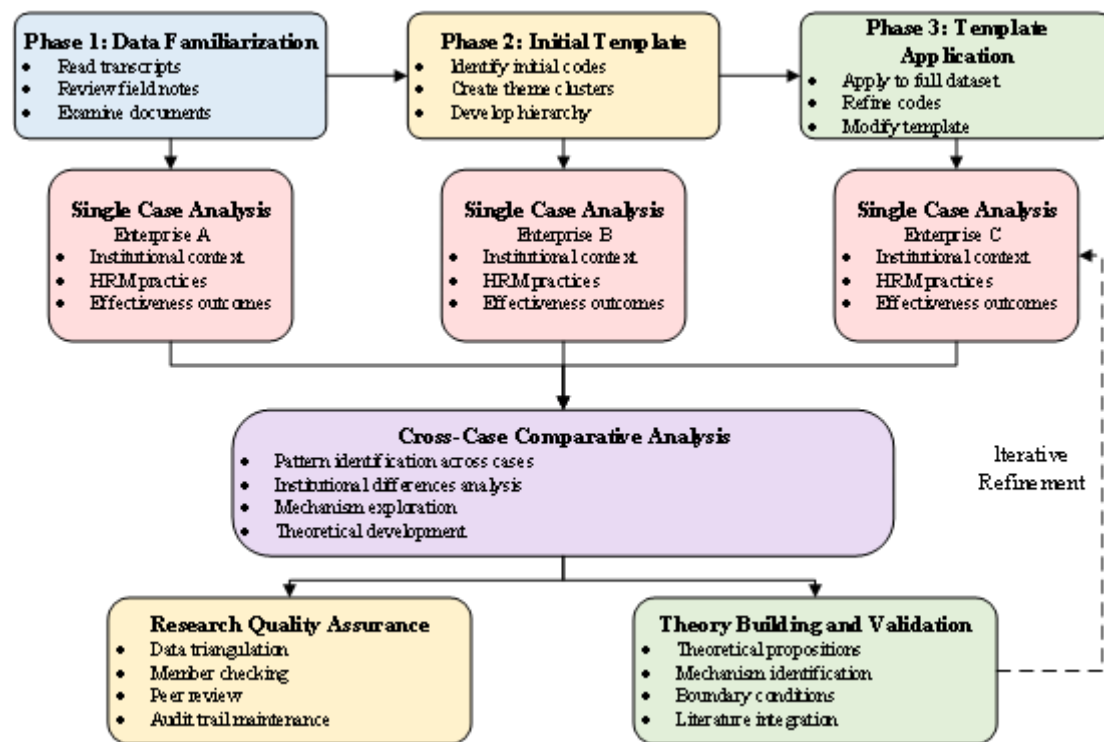


Figure 2. Data analysis process: Template analysis approach.

The analysis of templates starts with a keen involvement with the data, necessitating careful scrutiny of interviews, fieldnotes, as well as documentary evidence, with a view to obtaining an in-depth understanding of the dataset. During the first stage of building templates, one should pinpoint early codes, which should be informed by theoretical constructs from institutional theory as well as observable trends in the evidence from the data. Such codes are carefully developed into a well-organized structured hierarchy that identifies main themes as well as sub-themes relevant to institutional settings and practices within human resource management.

The application of the template involves a standardized approach to coding that is used throughout an entire dataset without exception, with more advanced templates going through multiple cycles of refinement as new trends and insights are ascertained during the coding stage. Relative to the template, a series of iterations is used until theoretical saturation, which is that point at which no further relevant themes can be ascertained from further analysis of the dataset. This ensures theoretical rigor and empirical validity in the analytical process.

A single case study examines each organization individually to understand the unique institutional context as well as the relevant human resource management practices for that environment. This within-case analysis uses a systematic approach that examines three fundamental aspects: institutional context characteristics, human resource management practices, as well as related outcomes for system efficiency. Causal connections as well as contextual determinants revealed in this analysis define the institutional environment effects on human resource management efficiency for each distinct case.

A comparative case study shows divergent patterns and variations between the three organizations, demonstrating how different institutional environments pose particular challenges and constraints to the creation of systems of human resource management. A systematic cross-case analysis is used to examine shared mechanisms as well as contextual differences in the influence that institutional arrangements have on the functionality of human resource management.

The quality assurance of research includes a range of methods intended for enhancing reliability as well as accuracy of outcomes. Data triangulation involves deployment of multiple data sources as well as methods of collection for examining outcomes with a view to diminishing possible biases. Member checking involves presenting preliminary findings to crucial individuals for the validation of validity as well as comprehensiveness of interpretations tendered. Peer review involves a process that involves external researchers with qualifications in institutional theory as well as case study methods for examining both analytical framework as well as theoretical contribution made.

The evaluation maintains extensive audit trails that document all of the analytical judgments, template modifications, as well as theoretical considerations in the research process. Such extensive documentation promotes transparency as well as replicability of the research outcomes, thus enhancing the strength of the research evidence. Analytical procedures adhere to quality requirements of qualitative studies so that not only are conclusions empirically informed but they are consistent with theoretical coherence as well as practical usefulness^[14].

Template analysis is a strong methodological tool combining deductive understanding from the theoretical underpinnings of institutional theory with inductive learning from empirical evidence. Such a combination makes it particularly well suited for exploring complex organizational procedures under their appropriate institutional circumstances. Because of its systematic nature, inter-case comparisons within a vast sample size are enabled, as well as contextual variations—something of great methodological significance in studying organizational practices with institutional settings that vary widely across fields of activity.

The coding process followed a structured protocol to ensure rigor. Initial coding was conducted independently by two researchers with expertise in organizational psychology and agricultural management. The researchers first coded 20% of the interview transcripts independently, achieving an intercoder reliability of 82% using percentage agreement. Discrepancies were resolved through discussion until consensus was reached, and the refined coding framework was then applied to the remaining data. Regular meetings were held every two weeks during the coding phase to discuss emerging themes and ensure consistency in interpretation.

To minimize researcher bias, several strategies were employed. Reflexive journaling was maintained throughout the analysis process, documenting analytical decisions and potential biases. Negative case analysis was systematically conducted to identify data that contradicted emerging patterns. Additionally, member checking was performed by sharing preliminary findings with five key informants from each enterprise to verify interpretations aligned with participant experiences.

3. Research results

3.1. Human resource management system status

The assessments made for each of the three organizations illustrate significant variances in their corresponding complementary developmental pathways regarding human resource systems. Enterprise A's institutionalized HRM approach creates distinct psychological patterns characterized by high organizational identity (8.8/10) and strong role clarity (8.5/10), reflecting employees' deep psychological attachment to formal structures. The 85% satisfaction rate indicates strong institutional trust and psychological security, while the 8% turnover rate demonstrates emotional stability within standardized frameworks, though psychological flexibility appears moderate (6.7/10). As one Enterprise A middle manager noted, "The standardized procedures give us clear direction, but sometimes I feel we follow processes even when a different approach might work better for specific situations." Another employee observed, "Everything has a form and protocol - it provides security but leaves little room for trying new methods."

These psychological patterns align with social identity theory's predictions about how institutional contexts shape identity salience. In Enterprise A, strong formal institutions create clear in-group boundaries and social categorization processes, resulting in employees deriving significant self-concept from organizational membership. The high organizational identity score (8.8/10) reflects identity fusion, where personal and organizational identities become intertwined through institutional reinforcement. Enterprise B's balanced approach enables multiple identity layers to coexist - professional identity shaped by formal systems and relational identity maintained through informal networks. Enterprise C demonstrates how collective social identity, rooted in traditional cultural bonds, substitutes for organizational identity when formal institutional support is weak, consistent with social identity theory's emphasis on group membership as a source of self-esteem and belonging.

Enterprise B demonstrates psychological adaptability through balanced formal-informal mechanisms, creating optimal psychological flexibility (8.0/10) and strong group cohesion (7.4/10). This generates psychological resilience and adaptive capacity, allowing employees to maintain both organizational identification and personal autonomy^[5]. Enterprise C relies on cultural psychological support mechanisms, where strong informal networks provide emotional security and collective identity. Despite lower organizational identity scores (5.9/10), employees demonstrate high group cohesion (8.1/10) and emotional stability (8.5/10) through traditional cultural bonds, reflecting compensatory psychological mechanisms that substitute for formal institutional support^[12]. A summary comparison of employee psychological response patterns under different institutional HRM systems across all three enterprises is shown in **Figure 3**.

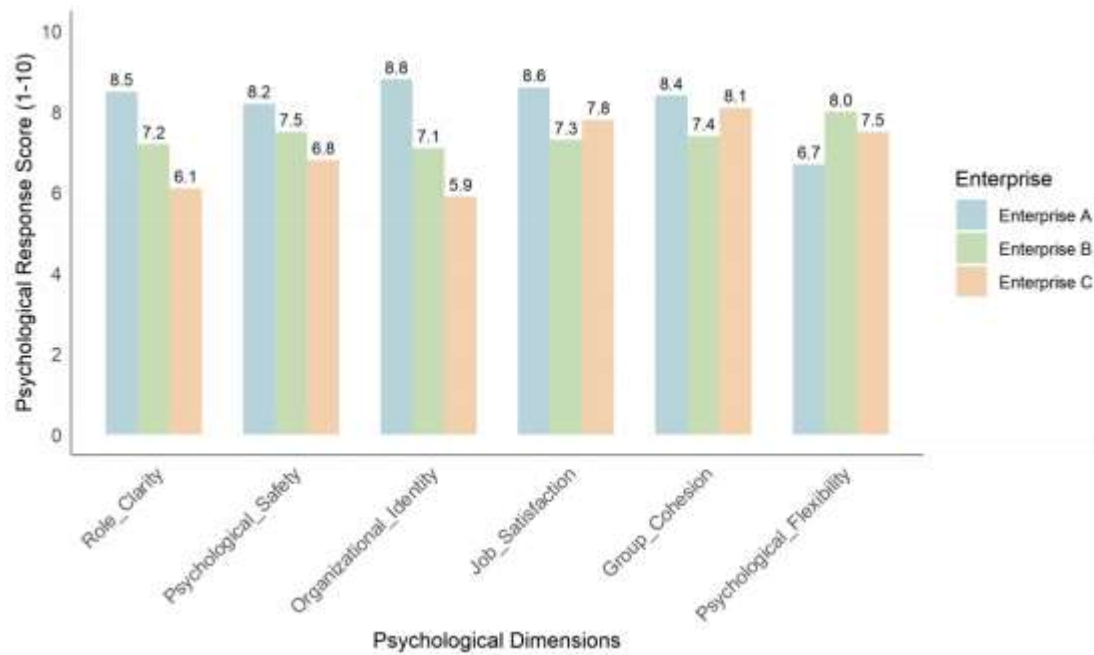


Figure 3. Employee psychological response patterns under different institutional HRM systems.

Note: Data derived from coded interview responses and observational notes ($n=60+$ interviews across three enterprises)

As shown in **Figure 3**, Enterprise A uniformly displays outstanding performance in all dimensions under review, registering remarkably high scores in system integration (8.7) and performance management (8.8). Enterprise B illustrates a comparatively balanced pattern across the dimensions, with scores running broadly between 7.0 and 7.5. Enterprise C illustrates a unique pattern, registering strength in employee satisfaction (7.8) and retention (8.1), while showing weaknesses in system integration (5.5) and performance management (5.9). These gaps reflect adaptive strategies pursued in different institutional environments.

3.2. Formal institutional environment impact

The effects of formal institutional context are profound through regulation, policy, and administrative pressure. That of the East subregion, in which the formal institutions are strong, hence setting explicit and transparent norms of behavior inside the workplace, processes for movement towards career, and the ability to evaluate employees' performance. Enterprise A has strong labor laws and even stronger enforcement mechanisms, huge talent-building programs funded via tax breaks and scholarship programs, and some of the world's most advanced digital administrative systems intended to make the organization run more efficiently and effectively and at lower compliance cost.

Deep located sites reveal a mixture of transitional features, from adoption of regulating measures including national standards differing locally, through to transitional ones. The high-level policies for complementing growth-oriented supports with elegant compliance-based requirements gain an environment where Enterprise B produced a managing formalism called rigid-flexible, balancing its commitment to administrative effort with the need for organizational flexibility. Staggered compliance deadlines also permit the testing of new approaches within the framework of the regulation.

The west provinces have adaptive formal institutional arrangements prioritizing fundamental compliance alongside recognizing traditional customs at the same time. Government policies intend to incentivize building enterprises with selective subsidization instead of giving universal standardization drives. Enterprise C takes advantage of this regime of regulation to create a simplified organizational structure

compatible with contextual aspects of west provinces, focusing on core protection of labor with a tolerance of some room for maneuvering in details of implementation. **Table 3** summarizes key differences in formal institutional environments and their management implications.

Table 3. Key differences in formal institutional environments and employee psychological implications.

Institutional Dimension	Eastern Region	Central Region	Western Region
Legal Completeness	Comprehensive and detailed	Gradually improving	Framework regulations
Enforcement Intensity	Strict and standardized	Moderately flexible	Focused monitoring
Policy Support	Multi-dimensional incentives	Targeted assistance	Special subsidies
Compliance Cost	High but standardized	Medium and manageable	Low with flexibility

3.3. Informal institutional environment shaping effects

Both society and cultural practice (from specific expectations, social relations, and common concepts) contribute to the formation of policies on human resources in informal institutions' houses. In Western cultures, there is a cultural impulse and a collectivistic form, which are common in relationship-based management practices of Enterprise C. Recruitment is through informal channels for communication and learning skills in the form of the apprentice. Although learning by doing generally has no formal codification, the learning method evidently has a high level of validity and legitimacy compared to a consensus and is socially acceptable to the situation in the new society. In central regions, there is a shift between traditional and mixed traditional and modern culture.

Enterprise B's leadership practices reflect this ambivalence: focusing on performance appraisal and affection, institution's logic, and the space for flexible adjustment, and so forth. There is harmony and balance with efficiency and wisdom of management that is predicated on such a fusion of cultures. Only the Eastern region scores high in market orientation, needing professional as well as contractual skills. Enterprise A's standardized management measures with cultural assistance include a promotion system based on personal achievement and sound standards on appraisal of outstanding performance accompanied by a clear message. As a result, it is not surprising that informal institutional components tend to offer different levels of psychological support and cultural identity in different regions (**Figure 4**).

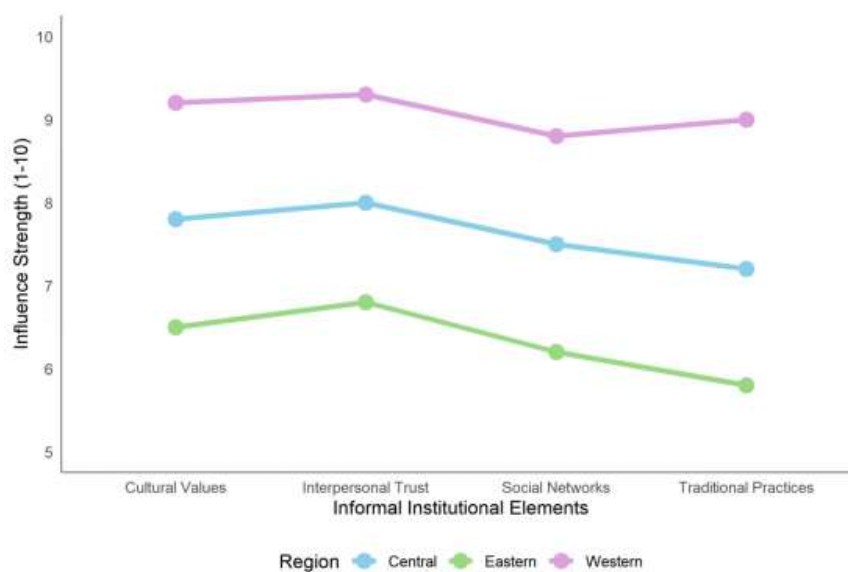


Figure 4. Informal institutional element influence strength.

Note: Scores based on thematic frequency analysis of interview transcripts and field observations

Figure 4 clearly demonstrates that informal institutional elements exert strongest influence in western regions, with all dimensions scoring above 8.5. This powerful cultural influence compensates for formal institutional weaknesses, maintaining organizational stability through deeply embedded social mechanisms.

3.4. Comprehensive institutional environment impact mechanisms

Integrated analysis: The institutional environment impacts HRM system effectiveness. We provide integrated explanations of how HRM systems may be effective by interplay between formal and informal elements in three typical impact mechanisms. In eastern countries, ‘psychological convergence’ is observed as advanced formal institutions help reduce ambiguity of expectations of the employee and contribute to high institutional trust, clear roles, etc., but there may be a blockage to creative thinking. While this convergence mechanism may increase psychological safety and organizational identification, it may also reduce behavioral plasticity and creativity.

Central regions exhibit "psychological complementarity," where advancing formal institutions provide structure while cultural inclusiveness maintains psychological flexibility, enabling Enterprise B employees to balance organizational identification with personal autonomy. This complementary framework ensures psychological well-being while preserving space for creative expression and adaptive behavior.

Western regions demonstrate "psychological adaptation" pathways where powerful informal institutions provide emotional support and cultural identity, compensating for weak formal frameworks. Enterprise C demonstrates reliance on culturally-embedded social support networks. A senior employee explained, "When formal training is limited, we learn from each other. The older workers teach the younger ones, just like in traditional apprenticeships." The HR manager acknowledged, "Without extensive formal systems, we rely on personal relationships and mutual trust to maintain stability. **Figure 5** demonstrates the management outcomes under different institutional impact mechanisms.



Figure 5. Management outcomes under different institutional mechanisms.

Note: Comparative indicators derived from template analysis of qualitative data

Research results demonstrate that institutional environments influence dairy enterprise HRM system effectiveness through multidimensional, multilevel pathways. Formal institutions provide regulatory frameworks and resource support, while informal institutions shape values and behavioral patterns. Different combinations create differentiated management ecosystems.

As shown in **Figure 5**, the psychological convergence mechanism in eastern regions achieves highest psychological security (8.8) but lowest behavioral flexibility (5.8) and moderate psychological satisfaction (6.5). The psychological complementarity mechanism in central regions demonstrates balanced psychological outcomes with optimal satisfaction (8.5) and strong creative thinking capacity (8.0). The psychological adaptation mechanism in western regions excels in emotional stability (8.5) and psychological satisfaction (8.8) while maintaining reasonable behavioral flexibility (7.9), though creative thinking remains limited (5.5).

Understanding these sophisticated processes of influence holds great implications for improving a business' managerial policies and cultivating the establishment of institutional structures. Each of the three mechanisms under consideration—Convergence, complementarity, and adaptation—Represents a separate process whereby institutional structures can influence organizational behavior and holds unique advantages and limitations for dairy business entities operating within select regional settings.

4. Discussion

4.1. Psychological impact mechanisms of formal institutional environment

The research findings reveal that formal institutional environments shape HRM system effectiveness through complex regulatory constraint and resource allocation mechanisms. This aligns with institutional theory perspectives suggesting that organizations adapt their practices to gain legitimacy within formal regulatory frameworks^[17]. The pronounced differences in legal completeness and enforcement intensity across regions create distinct operational contexts for dairy enterprises, supporting Zhelavska and Homon's^[3] assertion that institutional pressures significantly influence agricultural enterprise management systems.

The psychological impact of regulatory frameworks is significantly more pronounced in eastern provinces, where extensive labor regulations create predictable psychological contracts and reduce uncertainty, leading to higher organizational trust and role clarity but which may influence creative thinking and behavioral flexibility. Interview data suggests this pattern - an Enterprise A department head stated, "Sometimes our employees wait for official procedures rather than proposing solutions themselves." However, another manager noted benefits: "The clear structure helps us maintain quality standards consistently."^[5] This finding is supportive of previous research on Chinese stateowned enterprises using Xiao and Cooke^[9], who highlighted having tough enforcement systems that allow for standardizing administrative functions, including in provinces with economies significantly based on agriculture. Enterprise A represents an exemplary human resource advanced practices case with a reactive stance towards high demand for compliance, thus suggesting that formal institutions provide a significant impetus for administrative practices' modernization as well as enforcement functions' potential^[18].

The impact of formal institutions in resource allocation is witnessed with various policy support channels. High-level talent development projects pursued in the Eastern provinces, with both monetary rewards and grants for training, allow for high investments from enterprises in human capital development. This finding supports statements from Freeman et al.^[19] on the significance of policy intervention in human capital building across value chains of agribusiness. On the contrary, the central provinces present a transitional regime of policy settings intended to create an environment for innovative management, as witnessed with Enterprise B's adoption of moderate enforcement flexibility in search of hybrid solutions balancing both regulatory compliance as well as operational efficiency^[20].

Lacking strong formal institutions, organizations in the western sub-region tend to pursue adaptive methods of an uncomplicated but efficient organizational nature. This is in agreement with Putsenteil et

al.'s^[21] argument that institutional adjustments in sub-segments of agriculture often respond nonlinearly. That Enterprise C managed to maintain organizational success with insignificant formal institutional support indicates that organizations of this nature are in a position to pursue compensatory methods of organization in situations where formal organizational forms have not developed adequately.

4.2. Psychological support mechanisms of informal institutional environment

The significant impact of informal institutional norms on human resource policies demonstrates the deep interpenetration of managerial orientations in the agricultural industry. This finding supports statements from Bingyang et al.^[22], who posit that persistence of cultural expectations still plays a strong influence in managerial practices used in Chinese organizations. Differences in informal institution effects from one subregion to another allow for an understanding of intricate interplays between deeply rooted cultural bases and recent advancements, leading to diverse managerial settings.

Through a social identity lens, informal institutions function as identity-constructing mechanisms that shape how employees categorize themselves and others within organizational contexts^[11]. The collectivist values prevalent in western regions activate group-level social identities, where employees' self-concept derives primarily from group membership rather than individual achievement or organizational position. This finding extends social identity theory by demonstrating that identity salience patterns vary systematically with institutional contexts - formal institutions promote organizational identification through role clarity and structured career paths, while informal institutions foster social identification through interpersonal bonds and shared cultural values.

The western provinces demonstrate how informal institutions serve as psychological support mechanisms, where traditional collectivist values and interpersonal networks provide emotional security, group belonging, and social identity, addressing gaps in formal institutional frameworks. Field observations revealed that Enterprise C employees frequently consulted informal mentors when formal guidelines were unclear. As one employee described, "When there's no written policy, we ask the experienced workers - they know what works in practice."^[23] This finding supports Otkarina et al.'s^[17] assertion of social capital as a driving force of agricultural institution building. Even though a supposedly simple managerial hierarchy exists at Enterprise C positing formal behavior, high employee motivation towards the organization as well as a strong sense of organizational cohesion act as benefits from external cultural congruence. Consequently, it is necessary that managerial efficiency is not evaluated primarily using traditional Western methods^[24].

Cultural evolution in core fields creates both managerial opportunities and challenges. Enterprise B's strategy activates transitional governance constructs that integrate traditional relationship-building methods with emerging professional norms^[20]. Managers must design a series of strategies for balancing social cohesion with simultaneous uses of evaluation methods focused on measures of performance. Such approach effectively refutes simplistic binary thinking common to both traditional business management models as well as recent models.

Eastern regions demonstrate how market-oriented cultural values can align with formal institutional requirements to create convergent pressures for standardization. However, even in these modernized contexts, informal networks continue to play subtle but important roles in knowledge sharing and career development. This finding extends Ullah et al.'s^[24] work by showing that even highly formalized HRM systems cannot entirely escape cultural influences, though these influences may be channeled through professional networks rather than traditional kinship ties.

4.3. Psychological adaptation logic of regional differences

The systematic regional variations in institutional environments and their management implications reflect deeper structural factors related to economic development, historical trajectories, and resource endowments. This multi-level causation aligns with Tkachenko et al.'s^[7] institutional theory perspective on regional human resource development, which emphasizes the interconnectedness of macro-environmental factors and micro-organizational practices.

Economic development levels influence institutional maturity through complex, context-dependent pathways that vary significantly across regions. While our findings partially align with Dalwai et al.'s analysis, recent scholarship reveals considerable heterogeneity in the GDP-HRM sophistication relationship^[25]. Certain HR practices positively impact performance despite contextual challenges such as informal networks and resource limitations, suggesting that economic resources enable but do not determine management sophistication^[26]. This aligns with frameworks showing how institutional complementarities can substitute for financial resources in certain contexts^[27].

The relationship exhibits notable non-linearity, as sustainable HRM effectiveness depends on specific external and internal institutional demands rather than economic development alone^[28]. For instance, Enterprise C demonstrates relatively sophisticated informal HRM mechanisms despite lower regional GDP, utilizing adaptive organizational forms that emerge when firms navigate resource constraints through alternative institutional arrangements^[29]. Eastern regions' advanced economies provide resources that facilitate sophisticated HRM systems, yet the actual sophistication depends on institutional entrepreneurs, regulatory pressures, and the coevolution of institutional complementarities with technological and organizational capabilities^[30]. This multi-level causation suggests that while economic development creates enabling conditions, the GDP-HRM sophistication link is mediated by institutional logics, cultural factors, and strategic agency at multiple levels.

Historical path dependencies significantly influence contemporary management practices through cultural transmission mechanisms. The persistence of traditional management philosophies in western regions, despite exposure to modern management concepts, illustrates what Sirenko et al.^[18] term "institutional inertia" in agricultural contexts. This path dependence is not merely resistance to change but represents accumulated social capital and locally-adapted management wisdom that maintains organizational functionality under resource constraints^[31].

Factor endowment differences, particularly in human capital availability, create additional layers of regional variation. Eastern regions benefit from abundant educated workforce pools that support professionalized HRM systems, while western regions face chronic talent shortages that reinforce reliance on informal networks for recruitment and development. This finding extends Mills et al.'s^[6] analysis of HRM challenges in dairy farming by demonstrating how regional talent availability shapes feasible management strategies.

4.4. Research advantages and limitations

Comparative case research design offers a wide range of methodological advantages for understanding institutional effects on human resource management systems. Proper analysis of three regionally typical organizations allows for what Neubert^[14] calls "theoretical extension through multiple-case design" to reveal the mechanisms hidden from sight in deep quantitative studies. Also, combining both formal and informal institutional analyses offers a more thorough understanding of effects compared with studies focusing on a single institutional dimension only^[32].

Qualitative approach is particularly beneficial for extracting cultural nuances as well as informal institutional effects that can't be quantified. Application of the template analysis approach developed by Brooks et al.^[16] allows for a formalized comparison with sensitivity towards contextual differences. It is an approach in alignment with ethnographic method used by Chen et al.^[1] for studying vast dairy operations, thus indicating the usefulness of qualitative methods in agricultural management research.

However, a few limitations should be acknowledged. Although focusing on three organizations makes for a deep analysis, it limits generalizability of the findings for additional institutional environments that can vary. Cross-sectional approach captures well current institutional influences but not more dynamic institutional shifts over time. Noting Saravanan and Ravichandran^[32], dairy industry management practices change rapidly, suggesting longitudinal research would reveal important time dynamics. The researcher's point of view is bound to influence the interpretation of findings, despite efforts at member validation and reflexivity. The challenge inherent in studying informal institutions, which generally rely on implicit understandings rather than explicit rules, implies that some cultural factors can be overlooked or misunderstood. Future research can overcome these limitations by adopting mixed-method approaches that combine qualitative richness with quantitative comprehensiveness.

Literature on conventional business institutions tends to neglect important exceptions that excel in the face of institutional constraints. Analysis of dairy cooperatives conducted by Konieczna^[31] shows that the organization structure can interact with the institutions of an environment in sophisticated ways that have not been adequately addressed in academic literature. Additionally, a focus on inter-regional differences can overlook relevant differences existing within a given region, particularly a region as diverse as the west provinces, with significant regional institutional differences.

Despite such limitations, this current research makes a critical contribution to understanding institutional dynamics that define success in human resource management for agricultural business organizations. Through an explanation of three distinct institutional processes—Namely, convergence, complementarity, and adaptation—This paper constructs a theoretical explanation of institutional effects under varying developmental settings. Additionally, our analysis enriches institutional theory as well as agrifood management practice with further insights into interrelations between formal constraints, cultural beliefs, and organizational change as they act upon managerial regime efficacy.

5. Conclusion

The study demonstrates that employee psychological responses to human resource management systems in dairy enterprises are substantially shaped by institutional settings through various multidimensional psychological mechanisms that influence identity formation, social belonging, organizational attachment, and group dynamics. It explains how both formal and informal institutions interact with each other, forming three distinct settings: convergence, complementarity, and adaptation. Such mechanisms operate differently in varying regional settings, giving rise to disparate managerial outcomes suggesting more significant structural differences associated with economic growth, cultural tradition, as well as accessibility of resources. The findings challenge universal approaches to employee psychological management in agricultural enterprises by showing that psychological well-being, organizational identification, and group dynamics are institutionally contingent and require context-sensitive interventions that consider local cultural and institutional psychological climates. Eastern regions' convergent mechanisms enable sophisticated standardized systems but at high costs. Central regions' complementary mechanisms balance efficiency with flexibility, achieving optimal cost-effectiveness. Western regions' adaptive mechanisms maintain organizational stability through culturally-embedded practices despite resource constraints. Each pathway

offers unique advantages, suggesting that management excellence takes multiple forms. This study makes a theoretical contribution to institutional theory in the sense that it explains how both formal and informal institutions produce emergent effects as opposed to operating independently. Specification of specific mechanisms through which institutions influence human resource management practices increases the understanding of the micro-foundings of institutional theory in agricultural contexts. The study also demonstrates the long-term influence of cultural dimensions, even in modernizing sectors, thus challenging the assumption of an inevitable drift towards homogenous practices. Future research should address the dynamic psychological adaptation processes through longitudinal studies examining how employee mental models evolve with institutional changes, evaluate how collective employee psychology influences institutional environments, and explore innovative psychological interventions that can enhance employee well-being across different institutional contexts. Understanding the role of institutional elements becomes increasingly important as the dairy industry undergoes rapid changes. The explanation enables enterprises to develop management patterns appropriate to the given circumstances and enables policymakers to come up with institutional configurations promoting sustainable agricultural progress while respecting regional differences.

Conflict of interest

The authors declare no conflict of interest.

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