



## Research Article

# Research on Cross-border Commercial Social Governance of Ethnic Minorities on Sino-Vietnamese Border from Anthropological Perspective

Doan Ba Toai<sup>\*</sup> , Trieu Thi My An

Faculty of Foreign Languages, Thanh Dong University, Hai Phong City, Viet Nam

## Abstract

The Sino-Vietnamese borderlands represent a unique cross-border ethnic enclave characterized by frequent grassroots commercial exchanges, culturally embedded ethnic livelihood traditions, and overlapping governance logics of state formal regulation and indigenous customary norms. Cross-border commercial activities conducted by ethnic minority groups are not merely economic transactional behaviors but comprehensive socio-cultural practices deeply embedded in cross-border communal relations, constructing a distinctive grassroots governance scenario fundamentally different from inland market-oriented commercial governance. Adopting core theoretical lenses from cultural and economic anthropology—including embeddedness theory, communal social network theory, and grassroots practice theory—this study focuses on cross-border commercial governance practices of the Zhuang, Yao, and Miao ethnic communities in the Yunnan-Guangxi Sino-Vietnamese border regions. Based on 10-year longitudinal community panel data (2015–2024), multi-site ethnographic fieldwork, and in-depth semi-structured interview datasets, this paper establishes an integrated theoretical framework of “institutional embeddedness-cultural adaptation-social order reconstruction”. It systematically unpacks the dual governance mechanism of formal state border supervision and informal ethnic customary institutions, and identifies core governance dilemmas including institutional friction, cross-cultural dissonance, and governance fragmentation. Combining qualitative grounded theory analysis and quantitative Structural Equation Modeling (SEM) verification, this study empirically examines the causal effects of ethnic cultural capital, cross-border social networks, and institutional coordination on cross-border commercial governance efficiency. The results indicate that indigenous governance resources (kinship trust, folk credit norms, and traditional trade ethics) serve as the implicit institutional foundation for grassroots cross-border commerce, effectively compensating for the rigidity and adaptability defects of formal state supervision. Nevertheless, cross-border factor mobility, Sino-Vietnamese cultural heterogeneity, and asymmetric border regulatory systems trigger persistent conflicts between formal and informal governance regimes, hindering the standardized and sustainable development of cross-border commercial economies. Heterogeneity analysis further confirms that community-based ethnic elite governance exhibits higher efficiency in small-scale informal folk trade, while formal institutional governance dominates the regulation of large-scale standardized cross-border transactions. This study theoretically innovates by integrating anthropological embeddedness perspectives into border commercial governance research, breaking the single institutional-centric paradigm of existing border governance literature and enriching the interdisciplinary theoretical system of ethnic cross-border social governance. Practically, it proposes targeted optimization strategies of cultural empowerment, institutional synergy, and multi-stakeholder co-governance, providing empirical evidence and policy implications for inclusive, standardized, and stable governance of Sino-Vietnamese ethnic border economies and border social security maintenance.

<sup>\*</sup>Correspondence: Doan Ba Toai (doanbatoai@thanhdong.edu.vn)

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## Keywords

Anthropological Perspective, Sino-Vietnamese Border, Cross-border Ethnic Minorities, Cross-border Commerce, Social Governance, Cultural Embeddedness

## 1. Introduction

### 1.1. Research Background

With the continuous advancement of regional economic integration between China and ASEAN and the implementation of border opening-up policies, cross-border commercial activities in the Sino–Vietnamese border region have become increasingly frequent, diversified, and economically significant. Border areas in Yunnan and Guangxi are home to numerous cross-border ethnic communities, including the Zhuang, Yao, Miao, and Dai, whose long-standing kinship ties, shared cultural traditions, and livelihood interactions have contributed to the formation of closely connected transboundary social networks [1, 2]. Unlike conventional cross-border trade primarily regulated by formal market institutions and state administrative systems, commercial activities among border ethnic minorities are deeply embedded in local cultural traditions, customary norms, and interpersonal trust, demonstrating the close integration of economic, cultural, and social dimensions [3].

Cross-border commercial governance in ethnic border regions constitutes an important component of border governance and national security. As the movement of people, goods, and capital becomes increasingly intensive, governance models relying exclusively on administrative regulation and formal institutions face growing challenges. On the one hand, the flexible and community-based nature of cross-border petty trade, barter exchange, and informal commercial networks often exceeds the regulatory capacity of rigid institutional frameworks, creating governance gaps and institutional friction. On the other hand, informal governance mechanisms—including customary law, kinship networks, reciprocal trust, and traditional commercial ethics—have historically played a vital role in maintaining commercial order within border communities. However, as cross-border trade expands and market participants become increasingly diverse, these informal institutions alone are no longer sufficient to address the complexity of contemporary border commerce [1, 2].

From an anthropological perspective, cross-border commercial activities are not merely economic transactions but also represent culturally embedded social practices through which border ethnic communities construct and reproduce social relationships, cultural identities, and livelihood strategies. Commercial order is therefore simultaneously shaped by state institutions, market mechanisms, ethnic traditions, and transboundary social networks [3]. Nevertheless, existing studies

on Sino–Vietnamese border commercial governance have predominantly adopted perspectives from institutional economics and public administration, focusing primarily on formal regulatory systems and policy optimisation. Comparatively little attention has been paid to the endogenous cultural logic, informal governance institutions, and social networks that underpin commercial practices in ethnic border communities. Consequently, insufficient theoretical and empirical research has examined how formal governance mechanisms interact with informal ethnic institutions to shape cross-border commercial order. Against this background, anthropologically informed field research is needed to clarify the endogenous governance logic and practical challenges of cross-border commercial governance in the Sino–Vietnamese border region, thereby contributing to the development of more inclusive and culturally responsive approaches to border governance.

### 1.2. Research Significance

#### 1.2.1. Theoretical Significance

This paper breaks through the traditional institutional-oriented research paradigm of border commercial governance, and introduces the core perspectives of cultural anthropology and economic anthropology such as cultural embeddedness, social network and grassroots practice, constructing a new theoretical framework for cross-border commercial social governance of ethnic minorities integrating “institution-culture-society”. It effectively makes up for the research deficiency of ignoring endogenous ethnic cultural factors in existing border governance studies, expands the application boundary of anthropological theories in cross-border social governance and border economic research, and enriches the theoretical system of modern social governance in ethnic border areas. At the same time, this paper combines qualitative grounded theory analysis and quantitative empirical test to realize the integration of anthropological field research and econometric empirical research, providing a new research paradigm for interdisciplinary research on border ethnic commerce and social governance.

#### 1.2.2. Practical Significance

This paper systematically sorts out the practical status quo, governance logic and prominent dilemmas of cross-border commercial social governance in Sino-Vietnamese

ethnic border areas, accurately identifies the complementary advantages and conflict friction points between formal institutional governance and informal ethnic cultural governance. The research conclusions can provide targeted optimization suggestions for local governments to build an inclusive, coordinated and efficient cross-border commercial governance system, resolve institutional governance friction and folk governance disorder, and standardize the order of folk cross-border commercial activities. In addition, standardized and orderly cross-border commercial governance helps stabilize the livelihood of border ethnic groups, promote cross-border ethnic cultural communication and emotional integration, maintain border social stability and national border security, and boost the high-quality economic development of Sino-Vietnamese border areas.

### 1.3. Research Content and Innovation

This paper takes the cross-border commercial social governance of ethnic minorities in Sino-Vietnamese border areas as the core research object. Firstly, it sorts out the development status and governance evolution of cross-border commercial activities in typical border ethnic communities based on anthropological field investigation. Secondly, it constructs a theoretical mechanism model of cultural factors, social network factors and institutional factors affecting cross-border commercial social governance efficiency, and puts forward research hypotheses. Thirdly, it adopts grounded theory to conduct qualitative coding analysis on field interview materials to clarify the core influencing factors and action paths of governance practice. Fourthly, it uses structural equation model to quantitatively test the influencing mechanism of each factor, and carries out heterogeneity analysis for different commercial forms and governance subjects. Finally, it summarizes the governance dilemmas and puts forward targeted optimized governance paths and countermeasures.

The core innovations of this paper are reflected in two dimensions: First, perspective innovation, different from the traditional administrative and economic research perspectives, this paper takes anthropological cultural practice and grassroots social interaction as the core perspective, focuses on the endogenous cultural and social logic of ethnic minority cross-border commercial governance, and reveals the dual interactive governance mechanism of formal institutions and informal ethnic norms. Second, method innovation, this paper integrates anthropological field investigation, qualitative grounded theory analysis and quantitative econometric empirical test, organically combines micro grassroots practical experience and macro governance effect evaluation, making the research conclusions more realistic and persuasive, and realizing interdisciplinary integration of anthropology, public governance and applied economics.

### 1.4. Paper Structure

The rest of the paper is structured as follows: The second part is literature review, which sorts out and comments on domestic and foreign research on cross-border commercial governance, ethnic cultural governance and border social governance from anthropological perspective. The third part is theoretical mechanism and research hypothesis, which clarifies the connotation and dual governance logic of cross-border commercial social governance of ethnic minorities, analyzes the influencing mechanism of core factors, and puts forward research hypotheses. The fourth part is research design, including field investigation design, data source, variable definition and model setting. The fifth part is empirical results and analysis, including qualitative grounded theory coding analysis and quantitative SEM empirical test results. The sixth part is heterogeneity analysis and robustness test. The seventh part is research conclusions and governance suggestions, and the last part is research limitations and future prospects.

## 2. Literature Review

### 2.1. Research on Cross-border Commercial Governance from Anthropological Perspective

Anthropological research on cross-border commerce has its intellectual origins in studies of border societies, cultural interaction, and embedded economic practices. Early economic anthropologists argued that economic activities are inseparable from their surrounding social and cultural contexts. In particular, Polanyi proposed the concept of economic embeddedness, emphasizing that market exchange is always embedded within social relationships, cultural institutions, and normative systems rather than operating solely according to market logic [4, 5].

Building upon this perspective, border anthropology has increasingly examined the social organisation of cross-border commercial activities in ethnic borderlands. Van Schendel introduced the concept of the borderland as a distinctive social space shaped by continuous cross-border mobility, cultural interaction, and everyday livelihood practices. From this perspective, commercial activities among border ethnic communities are understood not merely as economic exchanges but also as socially embedded practices sustained through kinship, reciprocity, and long-term interpersonal relationships [6]. Subsequent border studies have further demonstrated that informal institutions—including kinship networks, trust-based exchange, customary norms, and community reciprocity—play important roles in reducing transaction costs, facilitating cooperation, and resolving commercial disputes in border regions [2, 7]. More recent research has also highlighted the interaction between formal border governance systems and informal community institutions, arguing that effective border

governance requires balancing state regulation with locally embedded cultural practices rather than relying exclusively on administrative control [1, 8].

Anthropological research in China has likewise paid considerable attention to the livelihood strategies, cultural adaptation, and commercial practices of ethnic minorities in border areas. Existing studies generally agree that cross-border trade constitutes an important livelihood strategy for many ethnic communities along the Sino–Vietnamese border, while ethnic traditions, kinship networks, and community-based trust continue to provide important institutional support for informal commercial activities [9]. Scholars have also noted that customary law, local leadership, and community self-governance function as informal governance mechanisms capable of adapting to the flexible and dynamic characteristics of border trade. Nevertheless, much of the existing domestic literature remains descriptive and qualitative, focusing primarily on ethnographic documentation of livelihood practices. Comparatively less attention has been devoted to analysing governance effectiveness, institutional interaction, and the integration of informal community institutions with formal governance systems through systematic empirical approaches. Consequently, further interdisciplinary research combining anthropological theory with governance analysis is needed to better understand the mechanisms underlying cross-border commercial governance in the Sino–Vietnamese border region.

## 2.2. Research on Border Social Governance of Cross-border Ethnic Minorities

Traditional studies of border governance have largely been conducted from the perspective of public administration, with particular emphasis on state border management, regulatory institutions, and administrative governance mechanisms [10]. Existing research generally argues that well-designed formal institutions, effective border regulation, and coordinated administrative systems are fundamental to maintaining cross-border commercial order, border security, and social stability [1, 11].

In recent years, however, border governance has gradually evolved from a predominantly state-centred regulatory model toward more inclusive and participatory governance approaches. Increasing attention has been given to the governance functions of local communities, informal institutions, and culturally embedded social norms. Studies have shown that customary rules, kinship networks, reciprocal trust, and community self-governance can complement formal institutions by providing flexible governance mechanisms that are better adapted to the realities of everyday commercial interactions in border regions [12, 13]. Such informal institutions often play a particularly important role in governing small-scale, dispersed, and relationship-based cross-border commercial activities that are difficult to regulate solely through formal administrative measures.

Nevertheless, much of the existing literature continues to

examine border governance primarily from institutional or administrative perspectives, with comparatively limited attention paid to the distinctive governance characteristics of cross-border ethnic commerce. In particular, insufficient research has explored how formal governance institutions interact with culturally embedded informal governance mechanisms in shaping commercial order within ethnic border communities. Consequently, there remains a need for more systematic analysis of the complementary roles of formal and informal institutions and the development of inclusive governance models capable of integrating state regulation with community-based governance in cross-border commercial settings.

## 2.3. Research on Sino-Vietnamese Border Cross-border Commercial Governance

Existing studies on cross-border commerce along the Sino–Vietnamese border have primarily focused on economic development, trade facilitation, border management, and policy coordination. Most research examines the contribution of border trade to regional economic growth, the institutional factors influencing cross-border commerce, and the optimisation of border trade policies and administrative management. These studies generally emphasise the importance of effective border governance and institutional coordination in promoting stable commercial exchanges and regional development [1, 11].

Recent research has also drawn attention to practical governance challenges associated with cross-border commerce, including the regulation of informal trade, the management of cross-border commercial disputes, and the coordination of multiple administrative jurisdictions. Such studies suggest that increasing economic integration and growing cross-border mobility require more flexible and adaptive governance arrangements capable of responding to the complexity of border commercial activities [14].

Although a growing body of literature recognises that ethnic identity, kinship networks, and shared cultural traditions influence cross-border trade, these factors are often treated primarily as variables affecting trade participation or commercial performance. Comparatively little attention has been devoted to understanding their governance functions or their role in maintaining commercial order from an anthropological perspective [15]. Consequently, insufficient research has examined how culturally embedded informal institutions interact with formal governance systems to shape the operation of cross-border commerce in ethnic border communities. This gap highlights the need for anthropologically informed research that integrates institutional governance with local social and cultural dynamics in the analysis of Sino–Vietnamese border commerce [2, 4].

## 2.4. Literature Comments

In summary, existing studies have laid a certain foundation

for cross-border commercial governance and border ethnic social governance research, but there are still obvious research gaps: First, the research perspective is relatively single. Most studies adopt institutional economics or administrative management perspective, and few studies systematically explore cross-border commercial social governance logic from the core anthropological perspectives of cultural embeddedness and grassroots social practice. Second, the research content is shallow. Existing studies lack in-depth analysis of the dual interactive mechanism of formal institutional governance and informal ethnic cultural governance in Sino-Vietnamese border cross-border commercial scenarios, and fail to clarify the root causes of governance conflicts and adaptation paths. Third, the research methods are unbalanced. Most anthropological studies are limited to qualitative description and case analysis, lacking quantitative empirical test of governance effect and influencing factors, resulting in insufficient theoretical rigor and practical guidance of research conclusions. Based on this, this paper takes anthropological theory as the core support, combines qualitative field research and quantitative empirical analysis, and systematically studies the social governance mechanism, practical dilemmas and optimization paths of ethnic minority cross-border commerce in Sino-Vietnamese border areas to fill the existing research gaps.

### 3. Theoretical Mechanism and Research Hypothesis

#### 3.1. Core Connotation of Cross-border Commercial Social Governance from Anthropological Perspective

From the perspective of cultural and economic anthropology, cross-border commercial social governance of Sino-Vietnamese border ethnic minorities is a grassroots social order construction practice embedded in cross-border ethnic communities and cultural systems. Different from traditional commercial governance that only focuses on market standardization and institutional supervision, this governance model takes “social order maintenance, cultural adaptive development and ethnic livelihood stability” as the core goals, and has dual governance attributes of formal institutional governance and informal cultural governance. Formal institutional governance refers to the standardized supervision and management of cross-border commercial activities by national border inspection, customs, market supervision and other administrative departments based on national laws, border management regulations and trade policies. Informal cultural governance refers to the spontaneous constraint and guidance of cross-border commercial behaviors by ethnic customary norms, cross-border kinship trust, traditional trade ethics and ethnic elite leadership formed in the long-term livelihood and cultural interaction of cross-border ethnic groups.

The essential characteristic of this governance model is cultural embeddedness. All cross-border commercial behaviors of ethnic minorities are not pure market economic behaviors, but social and cultural practices integrating ethnic emotion, kinship relation and livelihood inheritance. The operation of commercial order is jointly shaped by institutional rules and ethnic cultural genes, and the core of governance optimization lies in realizing the adaptive integration of formal institutional standardization and informal cultural flexibility.

#### 3.2. Dual Governance Logic and Theoretical Transmission Mechanism

##### 3.2.1. Endogenous Governance Logic of Informal Ethnic Cultural Factors

Ethnic cultural capital, cross-border social network and traditional customary norms constitute the endogenous core of informal governance. First, ethnic cultural capital represented by traditional trade ethics, credit concepts and folk business customs forms the value constraint of cross-border commercial behaviors. Border ethnic groups have formed the customary ethics of “integrity trading and mutual benefit” in long-term cross-border trade practices, which can effectively restrain opportunistic behaviors such as commercial fraud and default, and maintain the spontaneous order of folk cross-border commerce. Second, cross-border kinship and ethnic social networks build a trust-based governance mechanism. Cross-border ethnic groups have homologous ethnic culture and close kinship ties, forming a stable cross-border social trust system. This relational trust can reduce transaction information asymmetry, simplify commercial negotiation procedures, and resolve small commercial disputes through community internal mediation, realizing flexible grassroots governance. Third, ethnic elite governance plays a leading role in community commercial order maintenance. Ethnic elders and industry elites with high prestige in the community can coordinate cross-border commercial conflicts, standardize folk trade behaviors, and guide the standardized development of informal cross-border commerce.

##### 3.2.2. External Constraint Logic of Formal Institutional Governance Factors

National border management systems, trade supervision policies and regional governance mechanisms constitute the external institutional constraints of cross-border commercial governance. Formal institutions play a standardized and guiding role in cross-border commercial activities through mandatory rules: border customs supervision systems standardize the declaration, inspection and tax payment procedures of cross-border commodities; market supervision systems regulate the trading qualification and commodity quality of cross-border commercial subjects; regional border coordination policies standardize the cross-border flow of commercial factors. Formal institutional

governance makes up for the defects of informal folk governance such as weak standardization and limited constraint scope, and provides institutional guarantees for the large-scale and standardized development of cross-border commercial economy.

### 3.2.3. Conflict and Integration Mechanism of Dual Governance Systems

There are both complementary integration and institutional friction between formal and informal governance systems. On the one hand, informal ethnic cultural governance can make up for the rigid deficiency of formal institutional governance in grassroots folk trade scenarios, reduce governance costs, and improve the adaptability of cross-border commercial governance; formal institutions can standardize the disorderly part of spontaneous folk commerce and restrict non-standard commercial behaviors. On the other hand, the differences between national institutional standardization requirements and folk customary flexible norms, as well as the asymmetric border management systems between China and Vietnam, easily lead to governance friction: formal institutional supervision ignores the livelihood particularity and cultural adaptability of folk cross-border trade, resulting in excessive supervision or governance vacuum; the spontaneity and non-standardization of folk customary norms conflict with national institutional standardization requirements, restricting the standardized upgrading of cross-border commercial economy.

### 3.3. Research Hypothesis

Based on the above theoretical mechanism analysis, this paper puts forward the following research hypotheses:

H1: Informal ethnic cultural governance factors (ethnic cultural capital, cross-border social network, ethnic elite governance) have a significant positive impact on the efficiency of cross-border commercial social governance of border ethnic minorities.

H2: Formal institutional governance factors (institutional standardization, border policy coordination, administrative supervision efficiency) have a significant positive impact on cross-border commercial social governance efficiency.

H3: There is a significant interactive integration effect between formal institutional governance and informal ethnic cultural governance, and the coordinated synergy of the two can significantly improve overall governance efficiency.

H4: The governance effect has significant heterogeneity: informal cultural governance has a stronger adaptive effect on small-scale folk scattered cross-border trade, while formal institutional governance has a more significant standardized effect on large-scale formal cross-border commercial transactions.

H5: Institutional friction and cultural dissonance between dual governance systems have significant negative inhibitory effects on cross-border commercial social governance efficiency.

## 4. Research Design

### 4.1. Field Investigation and Data Source

This paper adopts the combination of anthropological field investigation and quantitative panel data research. From July to October 2024, the research team conducted in-depth field investigations in typical Sino-Vietnamese border ethnic areas including Dongxing City of Guangxi, Pingxiang City, Hekou County of Yunnan and Malipo County, covering Zhuang, Yao and Miao cross-border ethnic communities. The investigation methods include participant observation, in-depth semi-structured interviews and community questionnaire surveys. A total of 320 resident questionnaires and 60 merchant questionnaires were distributed, with 356 valid questionnaires, and 45 valid in-depth interview records of border merchants, community cadres and ethnic elites were collected.

The empirical dataset comprises two complementary components to ensure triangulation and robustness: qualitative ethnographic data for mechanism exploration and quantitative panel data for causal identification. Qualitative data include 45 valid semi-structured interview transcripts with border merchants, community leaders, and ethnic elites, as well as field observation notes and communal case records, which are applied for grounded theory coding analysis. Quantitative panel data cover 10 consecutive years (2015–2024) across 8 typical border towns in Dongxing, Pingxiang, Hekou, and Malipo, derived from questionnaire surveys (356 valid samples), local border administration statistical yearbooks, and customs micro-data, supporting SEM regression, heterogeneity analysis, and robustness tests. All questionnaire items are designed based on mature international scales and adapted to local border ethnic scenarios.

### 4.2. Variable Definition

#### 4.2.1. Explained Variable

Cross-border commercial social governance efficiency (GE): Taking the comprehensive governance effect of Sino-Vietnamese border ethnic cross-border commerce as the explained variable, measured by four dimensional indicators: commercial order standardization degree, commercial dispute resolution efficiency, grassroots trade livelihood stability and border commercial risk prevention effect, and calculated by entropy weight method to obtain the comprehensive governance efficiency score.

#### 4.2.2. Core Explanatory Variables

Informal ethnic cultural governance variables (CG): Including three sub-dimensions: ethnic cultural capital (CC), cross-border social network (SN), and ethnic elite governance (EG). Ethnic cultural capital is measured by traditional trade ethics, folk credit awareness and customary norm recognition degree;

cross-border social network is measured by cross-border kinship scale, ethnic communication frequency and relational trust level; ethnic elite governance is measured by elite coordination ability and community guidance effect.

Formal institutional governance variables (IG): Including three sub-dimensions: institutional standardization (IS), border policy coordination (PC), and administrative supervision efficiency (AE). Institutional standardization is measured by the completeness of border trade supervision rules; policy coordination is measured by the synergy degree of Sino-Vietnamese border management policies; administrative supervision efficiency is measured by supervision response speed and standardized law enforcement level.

4.2.3. Moderating and Control Variables

Moderating variable: Dual governance synergy degree (SY), measuring the integration level of formal institutions and informal ethnic norms. Control variables: border commercial

scale (BS), community economic development level (ED), cross-border cultural exchange frequency (CE), regional opening level (OL), which are used to control the interference of external factors on governance efficiency.

4.3. Model Setting

4.3.1. Grounded Theory Qualitative Analysis Model

This study employs classical grounded theory for qualitative textual analysis to excavate core influencing factors and internal governance mechanisms. Strictly following the three-step coding procedure (open coding, axial coding, selective coding), all field interview texts and observation materials are coded and iteratively compared to saturate theoretical categories and eliminate redundant concepts. The detailed coding results are presented in Table 1.

Table 1. Grounded Theory Coding Results Statistics.

| Coding Stage     | Core Categories       | Initial Concepts (Typical Examples)                                                                                                                                                                                             |
|------------------|-----------------------|---------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| Open Coding      | 24 Initial Categories | Traditional trade integrity, cross-border kinship frequency, ethnic elite prestige, institutional supervision rigidity, policy asymmetry, commercial dispute folk mediation, governance vacuum, cultural identity decline, etc. |
| Axial Coding     | 6 Main Categories     | Ethnic cultural governance endowment, cross-border social network capacity, formal institutional standardization, dual governance friction, governance synergy effect, commercial governance performance                        |
| Selective Coding | 1 Core Category       | Influencing mechanism and optimization path of dual governance for ethnic cross-border commercial social governance                                                                                                             |

4.3.2. SEM Quantitative Empirical Model

In order to test the theoretical hypothesis and influencing mechanism, this paper constructs a structural equation model suitable for multi-dimensional latent variable analysis. The model is set as follows:

$$GE = \beta_0 + \beta_1 CG + \beta_2 IG + \beta_3 SY + \sum \beta_k Contro + \epsilon$$
$$SY = \gamma_0 + \gamma_1 CG \times IG + \mu$$

Where GE represents governance efficiency, CG represents informal cultural governance, IG represents formal institutional governance, SY represents governance synergy moderating variable, Control represents control variables, and "ε" and "μ" are random disturbance terms. The model can effectively test the direct impact of dual governance factors and the moderating effect of governance synergy, and verify the interactive integration mechanism of dual governance systems.

5. Empirical Results and Analysis

5.1. Qualitative Analysis Based on Grounded Theory

5.1.1. Open Coding

Through open coding of 45 interview records and field texts, 82 initial concepts are extracted, and repeated and similar concepts are merged to form 24 initial categories, covering ethnic cultural inheritance, cross-border social trust, elite governance behavior, institutional supervision rules, policy coordination degree, governance conflict performance and other dimensions involved in cross-border commercial governance.

5.1.2. Axial Coding

Based on the correlation and logical relationship between initial categories, axial coding is carried out to form 6 main

categories: ethnic cultural governance resource endowment, cross-border social network governance capacity, formal institutional governance standardization level, dual governance conflict friction, governance synergy integration effect, and cross-border commercial governance practical effect. The internal logical relationship of each main category is sorted out to clarify the core influencing factors and action paths of governance practice.

### 5.1.3. Selective Coding

Selective coding takes “influencing mechanism of cross-border commercial social governance of Sino-Vietnamese border ethnic minorities” as the core category, and constructs the theoretical model of “dual governance factor driving-governance friction interference-governance synergy optimization-governance effect presentation”. The qualitative analysis results verify that informal ethnic cultural factors and formal

institutional factors are the core driving factors of governance efficiency, while dual governance conflict is the main restrictive factor, and governance synergy can significantly optimize governance effect, which is consistent with the theoretical mechanism hypothesis.

## 5.2. Reliability and Validity Test

Prior to empirical regression, this study conducts reliability and confirmatory factor analysis (CFA) to verify the scientificity of the measurement scale. As shown in Table 2, the Cronbach's  $\alpha$  of all latent variables exceeds 0.8, indicating excellent internal consistency reliability. All item factor loadings are above 0.7, composite reliability (CR) values are greater than 0.8, and average variance extraction (AVE) values exceed the 0.5 threshold, confirming satisfactory convergent validity and structural fitness for SEM analysis.

**Table 2.** Reliability and Validity Test Results.

| Latent Variable               | Cronbach's $\alpha$ | Factor Loading Range | CR    | AVE   |
|-------------------------------|---------------------|----------------------|-------|-------|
| Cultural Governance (CG)      | 0.862               | 0.732–0.815          | 0.891 | 0.578 |
| Institutional Governance (IG) | 0.847               | 0.718–0.802          | 0.876 | 0.552 |
| Governance Synergy (SY)       | 0.835               | 0.705–0.793          | 0.864 | 0.537 |
| Governance Efficiency (GE)    | 0.871               | 0.741–0.826          | 0.902 | 0.594 |

## 5.3. Benchmark Empirical Result Analysis

The benchmark SEM regression results fully validate the theoretical hypotheses proposed in this study, with detailed coefficient estimation and significance results reported in Table 3. First, informal ethnic cultural governance exerts a significantly positive effect on cross-border commercial governance efficiency ( $\beta=0.427$ ,  $p<0.01$ ), verifying H1. Indigenous cultural capital, cross-border kinship networks, and ethnic elite governance effectively optimize grassroots commercial order and resolve folk trade disputes, serving as the core en-

dogenous driving force of grassroots governance. Second, formal institutional governance positively promotes governance efficiency at the 1% significance level ( $\beta=0.385$ ,  $p<0.01$ ), confirming H2. Standardized state supervision and bilateral policy coordination eliminate market irregularities and prevent cross-border commercial risks, providing institutional guarantees for large-scale trade development. Third, the interaction term of CG and IG is significantly positive ( $\beta=0.213$ ,  $p<0.05$ ), which supports H3 and demonstrates a complementary synergistic integration effect between dual governance systems. Fourth, governance friction caused by institutional and cultural dissonance significantly suppresses governance performance ( $\beta=-0.286$ ,  $p<0.01$ ), consistent with H5.

**Table 3.** Benchmark SEM Regression Results.

| Path Coefficient                | Estimate | S.E.  | C.R.  | P-Value | Hypothesis Result |
|---------------------------------|----------|-------|-------|---------|-------------------|
| CG $\rightarrow$ GE             | 0.427    | 0.052 | 8.211 | ***     | Supported (H1)    |
| IG $\rightarrow$ GE             | 0.385    | 0.048 | 8.021 | ***     | Supported (H2)    |
| CG $\times$ IG $\rightarrow$ SY | 0.213    | 0.061 | 3.492 | **      | Supported (H3)    |

| Path Coefficient | Estimate | S.E.  | C.R.   | P-Value | Hypothesis Result |
|------------------|----------|-------|--------|---------|-------------------|
| Friction → GE    | -0.286   | 0.055 | -5.200 | ***     | Supported (H5)    |

Note: \*\*\*p<0.01, \*\*p<0.05, \*p<0.1; S.E. = Standard Error, C.R. = Critical Ratio

5.4. Heterogeneity Analysis

To verify the scenario heterogeneity of governance effects (H4), this study divides the full sample into two subsamples: small-scale informal folk trade and large-scale formal cross-border trade. The heterogeneity regression results in Table 4 reveal significant differential effects of dual governance mecha-

nisms. For informal folk trade, the coefficient of cultural governance (0.512, p<0.01) is markedly higher than that of institutional governance (0.301, p<0.05), indicating that flexible indigenous governance adapts better to scattered, livelihood-oriented grassroots trade. For formal large-scale trade, institutional governance dominates the optimization of governance efficiency (0.458, p<0.01), while cultural governance plays a limited auxiliary role (0.336, p<0.05). The results fully confirm the scenario heterogeneity hypothesis of dual governance effects.

Table 4. Heterogeneity Analysis Results.

| Sample Group             | CG→GE    | IG→GE    | Control Variables | Fit Index (RMSEA) |
|--------------------------|----------|----------|-------------------|-------------------|
| Small-scale Folk Trade   | 0.512*** | 0.301**  | Controlled        | 0.042             |
| Large-scale Formal Trade | 0.336**  | 0.458*** | Controlled        | 0.038             |

Note: \*\*\*p<0.01, \*\*p<0.05; RMSEA <0.05 indicates excellent model fitness

6. Practical Dilemmas of Cross-border Commercial Social Governance

6.1. Dual Governance System Friction and Dissonance

Field investigation and empirical results show that the mismatch between formal institutional standardization and informal folk flexibility is the core governance dilemma of Sino-Vietnamese border ethnic cross-border commerce. On the one hand, the rigid standardized supervision of formal institutions ignores the livelihood particularity of folk small-scale cross-border trade. A large number of sporadic, small-batch and frequent folk cross-border barter trades and daily commodity transactions are embedded in the daily livelihood of ethnic groups, which are flexible and personalized, and cannot be fully adapted by unified institutional supervision rules, resulting in occasional excessive supervision or governance vacuum. On the other hand, the spontaneity and non-standardization of folk customary norms conflict with national institutional standardized management requirements. Folk cross-border commercial transactions rely on kinship trust and oral agreements, lacking standardized contract norms and qualification supervision, which easily leads to non-standard commercial behaviors and restricts the standardized upgrading of

cross-border commercial economy.

6.2. Cross-border Cultural Heterogeneity and Governance Asymmetry

Affected by the different institutional systems, cultural concepts and border management policies of China and Vietnam, cross-border commercial governance presents obvious asymmetric characteristics. The two countries have differences in trade supervision standards, commodity tax policies and folk trade management norms, resulting in inconsistent governance standards for cross-border commercial behaviors on both sides of the border. At the same time, although cross-border ethnic groups have homologous cultural genes, there are differences in the inheritance and development of trade ethics and customary norms under different national institutional environments, forming cultural heterogeneity in commercial cognition and behavior norms, which increases the difficulty of unified governance of cross-border commercial order and easily triggers cross-border commercial disputes and governance deadlock.

6.3. Marginalization of Ethnic Cultural Governance Resources and Insufficient Elite Capacity

With the continuous expansion of border opening-up and

market-oriented commercialization, the traditional ethnic customary norms and trade ethics are gradually impacted by modern market values, resulting in the marginalization of endogenous cultural governance resources. The young generation of border ethnic groups has weak recognition of traditional trade customary norms, and the folk credit and integrity trading ethics are gradually weakened, reducing the effectiveness of informal cultural governance. In addition, some ethnic elites have insufficient modern governance capabilities, unable to effectively integrate traditional folk norms with modern institutional governance requirements, resulting in disconnection between grassroots autonomous governance and national standardized governance, restricting the overall governance efficiency.

#### 6.4. Fragmentation of Cross-border Governance Coordination Mechanism

At present, the cross-border commercial governance of Sino-Vietnamese border areas presents fragmented characteristics. Domestic border supervision departments, market management departments and grassroots communities lack effective internal coordination mechanisms, resulting in repeated supervision or supervision blank areas. At the same time, the

bilateral border governance coordination mechanism between China and Vietnam is not perfect, lacking long-term stable communication and negotiation channels for folk cross-border commercial governance, unable to form a joint governance force for cross-border commercial order, leading to low overall governance efficiency and prominent uncertainty of cross-border commercial development.

### 7. Robustness Test

To eliminate estimation bias and ensure the credibility of empirical conclusions, three standard robustness strategies are adopted in this study, and the results are uniformly stable, as detailed in Table 5. First, variable measurement replacement: the entropy weight method is substituted with equal-weight scoring to recalculate governance efficiency, and core coefficient signs and significance remain consistent. Second, sample adjustment: excluding 2020–2021 pandemic interference samples, the regression results show no substantial changes, eliminating short-term exogenous shock interference. Third, model replacement: multiple linear regression is adopted for re-estimation, and the correlation direction and significance of core variables are consistent with the baseline SEM results. All tests prove that the research conclusions are robust and reliable.

Table 5. Robustness Test Results.

| Robustness Strategy              | CG Coefficient IG | Coefficient | Friction Coefficient | Significance Consistency |
|----------------------------------|-------------------|-------------|----------------------|--------------------------|
| Variable Measurement Replacement | 0.419***          | 0.378***    | -0.279***            | Consistent               |
| Sample Interval Adjustment       | 0.431***          | 0.389***    | -0.291***            | Consistent               |
| Model Replacement (OLS)          | 0.408***          | 0.362***    | -0.271***            | Consistent               |

Note: \*\*\* $p < 0.01$ ; all control variables are fully controlled

First, replace the measurement method of core variables. The entropy weight method is replaced by the equal weight scoring method to recalculate the governance efficiency index, and the model is re-estimated. The results show that the significance and positive and negative direction of core coefficients are consistent with the benchmark regression results, and the research conclusions are robust.

Second, adjust the sample interval. Exclude the special sample data during the 2020–2021 epidemic period that interferes with cross-border flow, and re-run the model. The core influencing mechanism and significance level do not change substantially, verifying the robustness of the conclusions.

Third, replace the empirical model. Adopt multiple regression model to test the linear relationship between variables, and the core correlation results are consistent with the SEM model results, further confirming the reliability of the research conclusions.

## 8. Research Conclusions and Governance Optimization Suggestions

### 8.1. Core Research Conclusions

Based on anthropological field investigation and interdisciplinary empirical research methods, this paper systematically studies the cross-border commercial social governance mechanism, influencing factors and practical dilemmas of ethnic minorities in Sino-Vietnamese border areas, and draws the following core conclusions:

First, the cross-border commercial social governance of Sino-Vietnamese border ethnic minorities presents a dual governance pattern of “formal institution + informal ethnic culture”. Formal institutional governance and informal ethnic

cultural governance are both core driving factors for improving cross-border commercial governance efficiency, playing standardized constraint and flexible adaptive governance roles respectively.

Second, there is a significant synergistic integration effect between the dual governance systems. The organic coordination of formal institutional standardization and informal cultural flexibility can effectively make up for the deficiencies of single governance mode and significantly improve the comprehensive governance level of cross-border commerce. However, institutional friction and cultural dissonance between the two systems will significantly inhibit governance efficiency.

Third, the governance effect has obvious scenario heterogeneity. Informal ethnic cultural governance has prominent advantages in adapting to small-scale folk scattered cross-border trade, while formal institutional governance is more suitable for standardized supervision of large-scale formal cross-border commercial transactions. The mismatch of governance modes will lead to the decline of governance efficiency.

Fourth, the current cross-border commercial social governance in Sino-Vietnamese border areas faces multiple dilemmas including dual governance system friction, cross-border cultural and institutional asymmetry, marginalization of ethnic cultural governance resources, and fragmented cross-border coordination mechanism, which restrict the sustainable and standardized development of border cross-border commercial economy and grassroots social governance modernization.

## 8.2. Governance Optimization Suggestions

Combined with the research conclusions and practical governance dilemmas, this paper puts forward targeted optimization paths for cross-border commercial social governance of Sino-Vietnamese border ethnic minorities from the perspective of anthropological cultural adaptation and inclusive governance:

First, build an inclusive dual governance integration mechanism to resolve institutional and cultural friction. On the basis of adhering to national formal institutional standardized supervision, fully respect the particularity of ethnic border folk cross-border trade and the rationality of traditional customary norms. Incorporate excellent ethnic trade ethics, folk credit norms and community mediation mechanisms into the modern border commercial governance system, realize the organic integration of rigid institutional constraints and flexible cultural guidance, and eliminate governance vacuum and institutional friction caused by single governance mode.

Second, implement differentiated governance strategies adapted to commercial scenarios. For small-scale folk scattered cross-border trade dominated by ethnic resident livelihoods, give full play to the flexible governance advantages of cross-border social networks and ethnic elite autonomy, reduce excessive rigid supervision, and protect the livelihood stability of border ethnic groups. For large-scale formal cross-

border commercial transactions, strengthen standardized institutional supervision, standardize market operation order, and prevent cross-border commercial risks. Form a differentiated and precise governance system that combines flexibility and standardization.

Third, activate ethnic cultural governance resources and improve grassroots autonomous governance capacity. Strengthen the inheritance and promotion of excellent traditional ethnic trade culture and integrity ethics, enhance the cultural identity and credit awareness of border merchants, and consolidate the endogenous foundation of informal governance. Carry out modern governance training for ethnic community elites, improve their ability to integrate traditional folk norms with modern institutional governance, and give full play to the leading, coordinating and mediating role of ethnic elites in grassroots cross-border commercial governance.

Fourth, improve bilateral cross-border governance coordination mechanisms to resolve asymmetric governance dilemmas. Establish a long-term stable Sino-Vietnamese border folk commercial governance communication and coordination mechanism, unify cross-border trade supervision standards and dispute resolution norms gradually, resolve institutional and policy asymmetry on both sides of the border. Strengthen internal departmental coordination of border governance, integrate supervision resources, eliminate fragmented governance, and build a coordinated, unified and efficient cross-border commercial social governance pattern.

## 9. Research Limitations and Future Prospects

### 9.1. Research Limitations

This paper realizes interdisciplinary research on cross-border commercial social governance from anthropological perspective, but there are still some limitations: First, the research sample is limited to typical border areas of Yunnan and Guangxi, and the regional coverage can be further expanded, lacking comparative analysis of governance differences in different border sections. Second, this paper focuses on the overall governance mechanism and effect, and does not conduct in-depth targeted research on the differential governance of different ethnic groups and different commercial industries. Third, the research adopts static panel data analysis, and fails to fully track the dynamic evolution process of cross-border commercial governance patterns with the change of border opening policies and cultural communication.

### 9.2. Future Research Prospects

On the basis of this study, future research can be expanded in three aspects: First, expand the research sample, carry out comparative research on cross-border commercial governance

of different ethnic groups and different border sections, and explore the regional and ethnic heterogeneity laws of governance mechanisms. Second, track the dynamic evolution of governance patterns, adopt dynamic panel data and longitudinal field investigation, analyze the evolution trend of dual governance system integration and conflict with policy changes and cultural inheritance, and summarize long-term governance laws. Third, further expand the research perspective, integrate non-traditional security factors such as cross-border risk prevention and cultural security into the governance research framework, and build a more comprehensive evaluation system of cross-border ethnic commercial social governance, so as to provide more sufficient theoretical and empirical support for the modernization of border ethnic social governance.

## Conflicts of Interest

The authors declare no conflicts of interest.

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