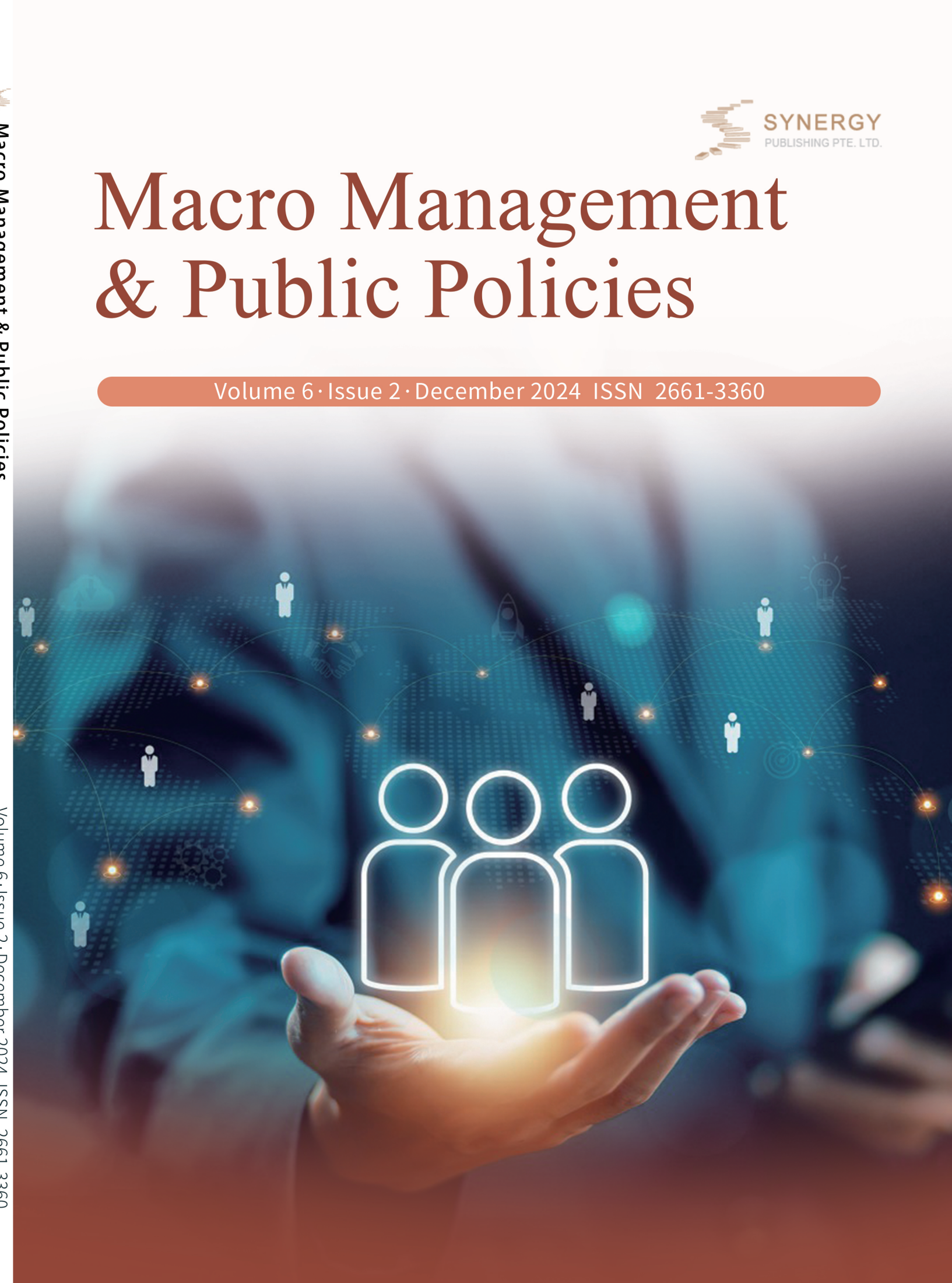


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ARTICLE

Cooperative Production and Adaptive Momentum: The Constructive Logic of the New Rural Governance System in Ethnic Regions of China

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ABSTRACT

The traditional governance model and hierarchical structure in China's ethnic minority regions are inadequate for advancing farmers' income and modernizing rural governance. Moreover, these traditional structures have resulted in governance challenges including unequal allocation of rural resources, absence of villagers' agency, and lack of resource transparency. This study delves into the systematic structure of the "rural governance system in ethnic minority areas". This study samples advanced ethnic minority township governance models from seven provinces, including Guangxi, Qinghai, and the Tibet Autonomous Region in China, and employs Grounded Theory to encode and analyze sub-elements within their governance systems. Subsequently, it investigates the construction logic of a novel rural governance system. (1) The research reveals that primary-level Party organization play a pivotal role in connecting bilateral delegated agency relationships, thereby establishing a mutually cooperative "chain-like" structure in village governance systems within ethnic minority areas. (2) The study identifies two cooperative production paths of the new rural governance in ethnic minority areas: top-down field-oriented party-government integrated governance and bottom-up legalized multi-subject collaborative governance. (3) By employing "integration means - bilateral mobilization" as the mechanism for momentum adjustment and relying on social autonomy, grassroots party organizations shape the momentum adjustment of the new rural governance system in ethnic minority areas. They do so by leveraging both formal and informal governance methods within this framework. Consequently, this study offers pertinent policy recommendations aimed at resolving the challenges of interest coordination and uneven development in ethnic minority areas amidst China's governance modernization efforts.

Keywords: Rural governance system; Political party organization; Grounded theory; Ethnic minority regions

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1. Introduction

Since the initiation of reforms and opening-up in 1978, significant socio-economic transformations have unfolded in rural China. Over this period, the Chinese government and the Communist Party of China (CPC) have consistently given precedence to agricultural, rural, and farmer-related issues. At the 20th National Congress of the Communist Party of China, there was a reiterated emphasis on the assertion that “the most arduous and formidable task in building a socialist modernized country still lies in the rural areas.” It is noteworthy that China, being a multi-ethnic country, harbors numerous rural poverty-stricken areas within ethnic-minority-inhabited regions. Addressing effective governance in these locales and augmenting farmers’ productivity and income pose critical challenges for the Chinese government as part of its all-encompassing rural revitalization strategy. Regarding specific issues surrounding ethnic rural development, the Chinese government stresses ethnic unity as a means to preserve political stability within its vast multi-ethnic landscape, promoting the values of “community” ideology and cultural governance. General Secretary Xi Jinping has stressed consolidating the sense of community for the Chinese nation and unswervingly taking the correct approaches with Chinese characteristics to handling ethnic affairs when addressing the central conference on ethnic affairs, aiming to integrate ethnic endeavors with national development under a unified agenda. The intricate nature of rural issues and the distinctive attributes of ethnic regions have emerged.

Our field investigations have revealed deficiencies in organizational autonomy, inadequate integration of legal resources, and weak economic foundations at the village level in specific ethnic minority rural regions of China. The traditional rural governance model and organizational structure no longer effectively address the needs of diverse stakeholders. Moreover, distinctive ethnic sentiments, religious beliefs, and cultural customs in ethnic regions clash with policy implementation

under the Chinese bureaucratic system, leading to disparities in rural resource allocation, reduced villagers’ agency, and a lack of transparency in resource management in these areas. The rural governance system is a crucial component of China’s modernization efforts, exerting significant influence on governance capacity, agricultural development, and the quality of life for farmers. In China’s No. 1 central document for 2023, the Chinese government explicitly proposed the establishment of the “Party Organization-led Rural Community Governance System Featuring a combination of Self-governance, Rule of law, and Rule of virtue” rural governance system, integrating party leadership with autonomy, ethical governance, and adherence to the rule of law. In its 2023 Central Document No. 1, the Chinese government explicitly proposed to establish the Rural Governance System of “the Party organization-led rural community governance system featuring a combination of self-governance, the rule of law, and the rule of virtue”. Strengthening the amalgamation of self-governance, rule of virtue, and the rule of law under party leadership is a critical pathway for advancing rural governance modernization. Further examination is necessary to assess the performance of the new governance system when integrated into the ethnic minority rural governance system, identify structural impediments and inhibitory factors among its components, analyze the adjustment process, and elucidate the mechanisms by which party organizations, autonomous entities, and local communities promote effective governance in ethnic minority rural areas.

2. The Literature Review of the “Party Organization-led Rural Community Governance System Featuring a combination of Self-governance, Rule of law, and Rule of virtue”

2.1 Research on Rural Governance Systems and the Modernization of Governance Capacity

Manion, M. and other scholars have conducted

comprehensive field investigations into governance systems, revealing that rural Chinese society is a complex interplay of multiple powers, including state, clan, elite, and religious domains^[1]. This intricate interplay can be examined through the lens of external governance relations or by conducting a micro-power inventory of villages^[2]. The empirical findings of Chan, K. W. and other researchers support this claim. Nevertheless, the rapid evolution of rural socioeconomics in modern times imposes new demands on grassroots governance systems (Tong, W. et al., 2020)^[3]. Positioned as the cornerstone of the national governance apparatus, the grassroots governance system plays a crucial role in adapting to the demands of the modern era (Stoyanets, N., Hu, Z., & Chen, J., 2018)^[4]. Building on this foundation, Looney, K.E. (2015) operationalizes the national governance structure at the grassroots level in China, advocating rational, normative, and autonomous governance as its foundational principles^[5]. This approach enables the rural governance system to gradually incorporate attributes such as pluralistic participation, autonomy, adherence to the rule of law, standardization, and rationalization (Kennedy, J. J., 2016)^[6]. Meanwhile, the village-level governance model, symbolic of Chinese-style modernization, is shifting from relative autonomy to a paradigm of party-government “cellularization” and structuring (Day, A. F., 2020)^[7], facilitating continuous optimization and the establishment of new organizational structures. Urgent reforms are necessary to realign the existing rural governance paradigm in ethnic minority areas, fostering collaborative synergy among grassroots entities, including political, administrative, societal, entrepreneurial, and communal organizations (Unger, J., 2016)^[8]. Therefore, it is essential to allocate additional governance space and resources to the rural governance framework in ethnic minority areas^[9].

2.2 Exploration of the “Party Organization-led Rural Community Governance System Featuring a combination of Self-governance, Rule of law, and Rule of virtue”

The “Party Organization-led Rural Community

Governance System Featuring a combination of Self-governance, Rule of law, and Rule of virtue” governance system refers to a new organizational structure for rural governance. It utilizes the primary-level Party organization as its core, with the rule of law serving as the framework and establishing basic norms. Additionally, the rule of virtue provides the fundamental value guidance, and autonomy acts as the core and primary form of rural governance^[10]. This structure is composed of four governance methods: collaboration, mutual assistance, complementary advantages, and joint construction. Chinese economic and social transformation has led to a shift in rural governance. Traditional “territorial space” governance has evolved into a complex and diverse “interest space” governance model (Howell, 1998)^[11]. It addresses overarching urban-rural development crises, including the hollowing of ethnic rural social structure, the absence of autonomous subjects, the weakening of governance authority, and the loss of rural culture (Alpermann, 2004)^[12].

Some scholars within the governance system argue that a singular ethnic rural governance model is incapable of attaining Pareto optimality concerning rural public values and interests (Rozelle, S., 2020)^[13]. They underscore the importance of concentrating on the systematic linkage mechanisms among governance subjects, rules, and tools (Smith, G., 2010)^[14]. In response, certain scholars have synthesized the experiences of ethnic rural governance practices with governance theories, resulting in the formulation of corresponding meso-level theories (Wang, S., 2007)^[15]. These theories encompass multi-stakeholder participatory democracy, cooperation governance theory grounded in public spirit and collective action logic, and political game theory rooted in the selective implementation of governance advantages by governments and farmers (Tsai, L. L., 2002)^[16]. These theories concentrate on elucidating the unified logic of endogeneity and modernity in ethnic rural governance. They emphasize the notable disparities in rural ethnic regions and underscore the roles of

village-level organizations, returning village elites, village regulations, grassroots religious beliefs, and rural culture. This emphasis aims to prevent the overburdening of grass-roots organizations and the erosion of rural governance authority (Wong, H. L., 2017)^[17].

2.3 Analysis of the applicability of Grounded Theory

Grounded Theory (GT) employs a systematic approach to focus on analyzing specific phenomena and deriving concrete concepts^[18]. By establishing a theoretical framework based on these concepts and their interrelationships, GT aims to explain social phenomena, uncover dynamic processes, and identify patterns of change^[19]. The primary rationale behind the operation of rural governance systems is to abstract the interactive relationships among various stakeholders and the dynamic governance principles by studying complex governance processes^[20]. This approach aligns with the research characteristics of Grounded Theory, which are based on data, interpretive processes, and pattern recognition. Current researches using Grounded Theory to explore rural governance in China's ethnic regions often summarize specific dimensions of governance systems, such as motives and policy tools, but lack researches on the driving pathways of the governance system^[21]. This necessitates cross-validation between comprehensive normative analysis and empirical analysis. Moreover, while there has been initial progress in examining the inherent tensions and structural barriers of grass-roots organizations and the governance system model, researches on the driving elements and mechanisms for establishing a new village-level governance system is still exploratory. To address these issues, this study selects exemplary governance case materials from ethnic rural areas as the research subjects and employs Grounded Theory and NIVIVO qualitative research methods. Using political coupling theory and system theory as frameworks, it examines the

operational effectiveness and driving mechanisms of the “Party Organization-led Rural Community Governance System Featuring a combination of Self-governance, Rule of law, and Rule of virtue” new rural governance system in ethnic rural areas, thus offering insights for optimizing governance policies in ethnic regions.

3. Grounded research on the “Party Organization-led Rural Community Governance System Featuring a combination of Self-governance, Rule of law, and Rule of virtue” in ethnic regions

This paper ultimately selected 7 typical case materials from ethnic rural areas among the second and third batches of national rural governance demonstration villages and towns designated by the Ministry of Agriculture and Rural Affairs of the People's Republic of China. These case materials include: Liujia Township in Fuchuan Yao Autonomous County, Hezhou City, Guangxi Zhuang Autonomous Region; Haohuahong Town in Huishui County, Qiannan Prefecture, Guizhou Province; Puwen Town in Jinghong City, Nujiang Lisu Autonomous Prefecture, Yunnan Province; Nanmu Township in Qushui County, Lhasa City, Tibet Autonomous Region; Da'an Town in Baisha Li Autonomous County, Hainan Province; Yeliquan Town in Lintan County, Gannan Tibetan Autonomous Prefecture, Gansu Province; and Baojiadian Town in Manas County, Changji Hui Autonomous Prefecture, Xinjiang. These selected cases were recommended by local governments and evaluated by authoritative experts in 10 domains of innovative social governance cases. The evaluation criteria included governance subjects, governance methods, innovative features, governance effects, governance impacts, public participation, etc., and were jointly released by the Ministry of Agriculture and Rural Affairs, the Central Propaganda Department, and the Ministry of Justice. The main

sources of data for this paper include: summary data of national rural governance demonstration villages and towns designated by the Ministry of Agriculture and Rural Affairs of China; empirical surveys and investigations of villages conducted by the research team using semi-structured questionnaires; and relevant public policy texts. Following the procedures of Grounded Theory, this paper utilized NVIVO12 software to interpret the relevant textual materials of the selected 7 cases. The specific process includes two procedures: data collection and data analysis^[22]. During the data collection process, textual materials were numbered. Selective coding identified core categories that encompassed all other categories, explored the logic of generating new governance systems, and established connections between core categories and main categories, as well as relationships between categories. Finally, by conducting theoretical saturation tests on 3 pre-preserved cases and 1 policy text, an explanatory framework was constructed (as depicted in **Table 1**).

Table 1 Case Coding Table

Number	Case Name
1	Liuji Township in Fuchuan Yao Autonomous County, Hezhou City Guangxi Zhuang Autonomous Region
2	Haohuahong Town in Huishui County, Qiannan Prefecture, Guizhou Province; Da'an Town in Baisha Li Autonomous County, Hainan Province; Yeliguan Town in Lintan County, Gannan Tibetan Autonomous Prefecture, Gansu Province; and Baojiadian Town in Manas County, Changji Hui Autonomous Prefecture, Xinjiang.
3	Puwen Town in Jinghong City, Nujiang Lisu Autonomous Prefecture, Yunnan Province
4	Nanmu Township in Qushui County, Lhasa City, Tibet Autonomous Region
5	Da'an Town in Baisha Li Autonomous County, Hainan Province
6	Yeliguan Town in Lintan County, Gannan Tibetan Autonomous Prefecture, Gansu Province
7	Baojiadian Town in Manas County, Changji Hui Autonomous Prefecture, Xinjiang

3.1 Category Refinement and Model Construction

3.1.1 Open Coding and Initial Categories

Open coding involves breaking down, examining, comparing, conceptualizing, and categorizing data. This phase relies entirely on analyzing the original data to explore initial concepts. These concepts are refined through a process of breaking down, conceptualizing, and recombining the data. In this paper, data from 7 cases and policy texts were imported into NVIVO software. Through the elimination of duplicates, merging similar categories, and employing other methods, 180 original statements and their corresponding 18 initial concepts were deduced, subsequently consolidated into 16 initial categories. (as depicted in **Table 2**).

3.1.2 Main Axis Coding and Primary Categories

Main axis coding, alternatively referred to as associative coding, entails analyzing the relational aspects of conceptual categories derived from open coding. It aims to establish connections between these conceptual categories, differentiate primary from secondary categories, and delineate connections between them. Adhering to the principles of main axis coding, the initial concepts undergo clustering. Consequently, the 17 sub-categories identified through open coding are consolidated into 8 primary categories capable of encompassing and elucidating a wider spectrum of informational content. (as depicted in **Table 3**).

3.1.3 Selective Coding and Core Categories

Selective coding, also referred to as core coding, entails the abstracting of core categories that encompass all subcategories from the conceptual categories and data analysis that have been formed. Core categories hold overarching significance as they can encapsulate all other subcategories within a broad theoretical framework, aligning with the logic of systematic evolution.

Table 2 Open Coding

Number	Original Material (Initial Concepts)	Initial Categories
1	A54 Comprehensive use of WeChat groups to create “smart countryside” (network governance) A79 Developing social governance informatization network platform (digital governance)	Expanding governance space
2	A19 Focusing on the difficulties reflected by the masses	Demand-oriented governance issues
3	A34 Emphasizing the ethnic regional autonomy system and rural revitalization strategy to ensure governance aligns with the correct direction (direction anchoring) A12 Establishing the leadership group and formulating “1+7” supporting documents (institutional design)	Political leadership
4	A18 Establishing the organizational system, with a focus on achieving comprehensive coverage of networked villages	Coverage of party organizations
5	A46 An increasing number of party members are voluntarily joining volunteer teams, highlighting the exemplary role they play	Party member demonstration driving
6	A32 Clan elders play a pivotal role in organizing village activities and mediating grassroots disputes	Traditional ethical relationships
7	A35 Major village development matters are discussed through democratic consultation meetings in the village	Modern concept of democratic consultation
8	A45 Policy implementation is promoted through the political authority vested in the village committee	Formal governance methods
9	A4 Employing moral education as a significant method to nurture the intrinsic capacity of rural governance	Informal governance methods
10	A2 Hastening the development of digital governance and fully harnessing the transformative role of information technology in rural revitalization	Technological governance tools
11	A6 Village rules and clan regulations must adhere to the provisions of the Constitution and laws	Laws and regulations
12	A4 In minority ethnic villages, clan regulations remain integral to the village governance framework	Behavioral norms
13	A9 Village committee personnel conduct thorough visits and investigations to comprehend the needs of the villagers	Collection of opinions
14	A41 The village committee convenes internal meetings to synchronize the viewpoints and proposals of villagers	Integration of opinions
15	A51 Provide feedback on the progress of policy implementation to villagers through a transparent operational mechanism	Feedback of opinions
16	A21 Establishment of a Village Volunteer Service Team	Volunteer organizations
.....
Total	180 original statements	16 categories

Table 3 Axis Coding and Main Category Definition

Main Category	Subcategory Meaning	Explanation
Field Construction	Expand governance space	This entails transcending geographical constraints in ethnic regions, transitioning from territorial boundaries to virtual domains.
Thematic Field Typing	Demand-oriented governance issues	These are governance domains revolving around significant debates and issues, emerging from the needs of ethnic minority communities.
Party Authority	Political leadership	This involves steering governance trajectories in ethnic regions through strategic planning, resulting in the development of diverse institutional frameworks.
	Coverage of party organizations	Establishment of political party units within local ethnic organizations.
The Organization of Autonomy	Party member demonstration driving	Demonstrating leadership by party members, pioneering governance initiatives in rural ethnic areas.
	Establishment of Autonomous Organizations	Ethnic minority villagers establish different types of autonomous organizations.
The Procedualization of Autonomy	Opinion collection	Utilizing various channels and methods to comprehend the demands of ethnic minority villagers.
	Opinion synthesis	Mediating conflicting interests between political parties and ethnic minority self-organizations, fostering consensus.
	Opinion feedback	Feedback provided by local governments or village-level organizations on the demands of ethnic minority villagers.
Mobilization from Society	Participation of villagers	Extensive engagement of villagers across all ethnic groups.
	Elite impetus	Ethnic minority elites mobilize villagers for social governance informally, leveraging resources.
Mobilization for Society	Party member guidance	Exemplary roles played by party members, guiding active involvements of ethnic minority villagers.
	Wide dissemination	Disseminating policy guidelines to encourage villagers' participation in social governance practices.
Chinese moderation governance methods	Exemplary demonstration	Stimulating enthusiasm among rural ethnic villagers to engage in public affairs through exemplary actions and behaviors.
	Formal governance methods	Reliance on governmental authority, encompassing legislation, planning, directives, regulations, etc., to achieve policy objectives.
	informal governance methods	Predominantly utilizing non-coercive measures like emotional mobilization and social support to attain policy goals.
	Technological governance tools	Utilizing contemporary scientific and technological methods.

A. Driving Force of External Governance Structures

The relationship between the state and society in China has historically been perceived as a binary separation. Since the advent of reform and opening-up, rural governance has shifted from village autonomy towards a gradual transition to rural governance, wherein state and societal co-construction have emerged as the imperative at the grassroots level (David L,1998)^[23]. This transformation is characterized by deep integration, marked by mutual benefit and reciprocal dependence, with state governance “authorization” and societal governance “empowerment” manifesting in a bi-directional trajectory, particularly evident in ethnic rural areas. Under the political auspices of the Communist Party of China (CPC), the “ Party Organization-led Rural Community Governance System Featuring a combination of Self-governance, Rule of law, and Rule of virtue” acts as a mechanism for the downward distribution of state governance resources and organizational governance, bolstering grassroots society’s fundamental support and legitimacy of state governance^[24]. This process involves enhancing state governance “authorization” and once again empowering grassroots organizations through the authority of party organizations (Holly et.al,2020)^[25]. The transformation of the state-society relationship from “separation” to “co-construction” serves as the external environmental mechanism that propels the structural transformation of rural governance systems.

B. Inversion of Internal Governance Rules

The phenomena of aging and hollowing-out in ethnic rural areas have become increasingly conspicuous. The network of relationships between ethnic groups is gradually unraveling, and formal and informal norms of behavior under strategic and non-strategic approaches have yet to be fully established. The disintegration of neighborhood mutual assistance is persistently occurring, thereby impeding the enhancement of governance effectiveness in ethnic rural areas. The internal logic of “ Party Organization-led Rural Community Governance System Featuring a combination of Self-governance, Rule of law, and Rule of virtue” centers on the inversion of rural governance rules, seeking to construct autonomy, rule of law, and moral

governance that align with the context of ethnic rural areas through the nexus of new rural elites and rural regulations and conventions. It integrates a rule system that combines external rule of law regulations and internal moral governance rules to bridge the gap in internal governance rules^[26]. By restructuring internal governance structures and optimizing governance rules and tools through party organization, the overall effectiveness of the internal logic operation of the “ Party Organization-led Rural Community Governance System Featuring a combination of Self-governance, Rule of law, and Rule of virtue” is augmented.

By amalgamating the analysis of rural governance environments and evolutionary conditions, four core categories can be derived to describe the generation logic of the “ Party Organization-led Rural Community Governance System Featuring a combination of Self-governance, Rule of law, and Rule of virtue” (as depicted in **Table 4**).

Table 4 Selective Coding and Core Categories

Main Category	Core Category	
Thematic Field Typing	Field-oriented Governance	Field-oriented Party Integration Governance
Party-building Leadership Collaborative Governance	Field Position and Actor Relations	
Autonomy Organization Autonomy Proceduralization	Multi-stakeholder Governance	
Mobilization from Society Mobilization for Society	Two-way Mobilization Mechanism	Momentum Adaptive Adjustment Strategy
Formal Governance Methods Informal Governance Methods	Chinese moderation governance methods	

3.1.4 Theoretical Saturation Test

In order to enhance the study’s credibility, this paper included two segments of case text materials from Nangmu Township, Qushui County, Lhasa City, Tibet Autonomous Region, and Liujia Township, Fuchuan Miao Autonomous County, Hezhou City, Guangxi Zhuang Autonomous Region. Additionally, 15 policy and regulatory documents were utilized as “triangulation” materials to assess theoretical saturation. The findings of the test did not reveal any frequently occurring new categories or concepts, nor did they uncover new components within existing categories. Consequently, it is reasonable to conclude that the conclusions drawn possess strong credibility.

4. Analysis of the Constructive Logic of the “Party Organization-led Rural Community Governance System Featuring a combination of Self-governance, Rule of law, and Rule of virtue”

Through open coding, main axis coding, selective coding, and the refinement of corresponding initial, primary, and core categories, this paper constructs an explanatory framework for the driving mode of the “Party Organization-led Rural Community Governance System Featuring a combination of Self-governance, Rule of law, and Rule of virtue” in ethnic rural areas^[27]. The practical logic of this governance system includes collaborative production facilitated by primary-level Party organization and the self-governance of villagers, as well as momentum adjustment mechanisms represented by rule of law and rule of virtue.

This paper employs Ernesto Laclau’s concept of “political articulation” to develop an analytical framework^[28]. Laclau’s theory posits that political articulation involves organizing disparate issues around a central core to construct a coherent ideological discourse. It encompasses various aspects of political sociology, such as discourse construction, organizational mobilization, interest transmission, and coercion. In ethnic regions, governments at all

levels endeavor to reduce governance costs, ensure effective policy implementations, and promote village community developments^[29]. They utilize the coordinating function of party organizations to establish cooperative production networks, shape public values, and integrate these values into the provision of public services^[30]. This integration fosters the convergence of instrumental rationality and value rationality. The operational mechanisms of this governance system are consistent with the theoretical framework of political articulation^[31]. Moreover, this paper underscores the presentation of empirical evidence and the development of the framework within this conceptual framework, thereby elucidating its fundamental mechanisms and driving forces (as depicted in **Figure 1**).

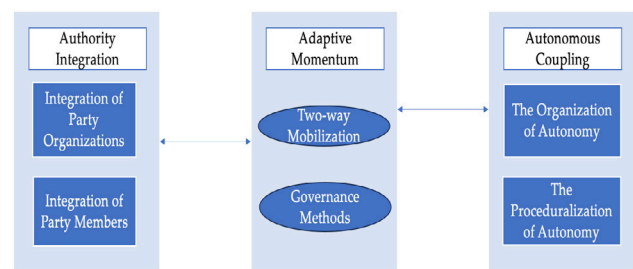


Figure 1 Practical Pathways of Rural Governance in Ethnic Areas

4.1 Authority Fusion: Field-Based Political Party Integration Leading Cooperative Production

Given the accelerated pace of urbanization in China, the boundaries between rural and urban areas are increasingly blurred, increasing the complexity of ethnic rural governance affairs. It is essential to clarify governance domains and tasks as a fundamental prerequisite for exploring the driving mechanisms of constructing rural governance systems.

4.1.1 Spatial Expansion and Issue-oriented Field-based Governance

The innovation of ethnic rural governance models has given rise to micro-governance domains bounded by grids, courtyards, and markets, as well as cross-

city regional cooperative governance domains. The changes in governance domains, while appearing as adjustments to governance territories on the surface, essentially involve absorbing diverse social entities, the vertical extension of governance chains, and the horizontally integrating departmental functions within the framework of maintaining the existing administrative system^[32]. This is achieved through adjusting power structures by decentralizing resource allocation authority, formal and informal institutional arrangements, with the aim of rebuilding the rural public order and realizing cooperative production.

The expansion of governance space is manifested in extending governance boundaries from the physical reality of territorial boundaries to the governance of digital space and using algorithmic labor tools, breaking free from the constraints of time and space to achieve governance domain transformation (as depicted in **Table 4**, core category 1). While network governance domains and network micro-platforms provide equal opportunities for villagers' participation and communication channels, they also foster new productive forces^[33]. *Measures such as the establishment of network governance domains based on WeChat groups in Baisha Li Autonomous County, Hainan Province, have expanded traditional ethnic area governance boundaries, creating entirely new governance domains beyond temporal and spatial constraints (as illustrated in Case 5).*

There are regional disparities in development in Chinese ethnic rural areas, compounded by the increasing diversification of social values, rendering government-customized governance objectives and public services inadequate to meet the highly diverse social needs. China's unique power structure and political logic dictate that the Communist Party of China must make adaptive adjustments based on the characteristics of social development to consolidate its governance foundation and leadership position. Embedding party authority is one of the ways to achieve cooperative production, primarily manifested in the integration of party groups and party members.

4.1.2 Party Integration: Leveraging Organizational Mobilization

Party integration refers to establishing party branches and groups in rural organizational forms. grassroots rural party organizations are not only the endpoint of Communist Party governance but also the key to exerting political authority. The "Opinions of the CPC Central Committee and the State Council on Strengthening the Modernization Construction of Grassroots Governance Systems and Governance Capabilities" proposes actively promoting the cross-appointment of village (community) party organization secretaries to serve as directors of village (residential) committees and members of village (community) "two committees" through legal procedures. Within the "Party Organization-led Rural Community Governance System Featuring a combination of Self-governance, Rule of law, and Rule of virtue", ethnic areas integrate party organizations with grassroots rural autonomous organizations by adopting a model where village party branch secretaries concurrently serve as village committee directors, effectively fulfilling a crucial role in coordinating resource allocation and promoting rural cooperative production. Additionally, in ethnic rural areas, special consideration is given to local customs and traditions, encouraging and supporting outstanding representatives of ethnic minorities to serve as members of village leadership teams. *In Da'an Town, Baisha Li Autonomous County, Hainan Province, all administrative villages have established village committees and villagers' congresses, dividing several villagers' groups and setting up party groups within them, thus establishing a vertically integrated and horizontally interconnected party organization system (as illustrated in Case 5).*

4.1.3 Member Aggregation: Leveraging Party Networks for Resource Integration Efficiency

Member aggregation refers to appointing or recommending party members from local governments and enterprises to serve as "first secretaries," resident party members, voluntary

servers, etc., in ethnic areas. Resource integration involves, based on organizational mobilization, party organizations and members leveraging their organizational advantages to provide supporting cooperative production with resources in ethnic rural areas^[34]. Due to the particularity of governance in ethnic rural areas, tensions may arise between the unique values of ethnic minorities and the policies of the Chinese government, making it difficult to reconcile grassroots contradictions and leading to issues such as low policy implementation efficiency. Since the implementation of China's poverty alleviation strategy, member aggregation has become a critical link in the execution of government policies and resource allocation. The downward distribution of internal party resources can enhance resource flow efficiency, thereby extending the service chain of parties in rural areas. *In Baojiadian Town, Manas County, Changji Hui Autonomous Prefecture, Xinjiang, the full utilization of descending party members has seen party members leading local Tibetan cadres and the masses in studying pertinent policy documents from the CPC Central Committee, improving the precision of policy implementation (as illustrated in Case 7).*

The central government determines the positioning of rural development by setting strategic goals, delegates corresponding development tasks to the intermediate government for implementation, and the local government further allocates relevant resources, projects, and funds to villagers in ethnic areas through village-level organizations. Following the reform of the fiscal system, the operation of township governments in ethnic areas relies on financial support from higher-level governments, bearing both significant assessment pressure from higher-level governments and facing difficulties in coordinating with village-level organizations.

Structural barriers exist in integrating the political authority of the Communist Party of China into ethnic areas due to the decline of rural collective economies and the diversification of farmers' value orientations. Firstly, there is weak stability in organizational strength. The current rural primary-

level Party organizations setting model in ethnic areas, centered on administrative villages, have not comprehensively promoted the overall layout of rural revitalization. Additionally, some minority party cadres lack governance capabilities. Secondly, there are defects in operational mechanisms. Due to the conservative development nature of ethnic areas, there is insufficient effective interaction between rural party cadres and ethnic minority groups^[35]. When facing the masses, grassroots party organizations adopt a one-way, top-down approach to disseminating information, making it difficult to timely and accurately understand the thoughts of ethnic minority groups^[36]. Therefore, leveraging is necessary the pivotal role of grassroots organizations in bidirectional agency relationships, promoting benign interactions among various entities through both top-down and bottom-up approaches, thereby forming a mutually cooperative production network.

4.2 Self-Governance Coupling: The Effective Functioning of Governance Systems within the Comprehensive Framework of People's Democracy

Grassroots party organizations leverage their political resources to incentivize villagers' involvement in rural governance. This incentive fosters the attainment of democratic consensus and the alignment of diverse values, laying a solid foundation for villagers' engagement in cooperative production. These values, which encompass freedom, equality, and collective action, influence political decisions, reflecting a broad spectrum of public interests.

4.2.1 Autonomy Organization: Establishing Organizational Structures for Villagers' Cooperative Production

In ethnic rural governance practices, traditional informal resources such as local elites and clan elders emerge as predominant groups in rural revitalization endeavors. With their extensive social networks, they serve as vital catalysts for mobilizing support and public participation. However, their

individual capacity to address complex issues is limited, necessitating the formation of organizations to aggregate social resources, enhance rural public value, and promote cooperative production. The Mass Line and political consultation practices of the Communist Party of China facilitate the development of diverse value norms. In ethnic minority rural areas of China, an organizational structure known as “Party Organization-led Rural Community Governance System Featuring a combination of Self-governance, Rule of law, and Rule of virtue” has been implemented, comprising village party organizations, village committees, village supervision committees, and village collective economic organizations. Villagers’ meetings and representatives’ gatherings facilitate extensive discussions on public issues, fostering villagers’ self-governance through equal dialogue and negotiation, respecting the subjective wishes of diverse ethnic groups, and promoting inclusivity within the village community. Despite their local prestige, many clan elders in ethnic minority rural areas, due to varying education levels, may struggle to express their demands through democratic processes. *For instance, in the Nujiang Lisu Autonomous Prefecture of Yunnan Province, blending democratic structures with local ethnic minority clan culture involves conducting diverse ethnic cultural deliberative activities through village-level support systems, integrating villagers into a deliberative democratic framework and thus consolidating democratic consensus (as illustrated in Case3).* This process involves individuals transitioning from individualism to organized states, thereby shaping the collaborative governance framework of rural areas.

4.2.2 Autonomy Proceduralization: Establishing a Deliberative Framework for Villagers’ Cooperative Production

The entire process of people’s democracy in China establishes a consultative communication chain between the ruling party and the public, intervening in affairs discussions, decision-making, and benefit distribution through legitimate

rationality and extensive participation. It provides necessary conditions for grassroots democracy in rural areas by emphasizing inclusiveness and legitimacy in democratic practices. Recognized public expression channels allow villagers in ethnic areas to acknowledge the legitimacy of institutions such as villagers’ representative assemblies or councils. Rural cadres and villagers consciously adhere to rules generated through democratic decision-making, integrating their ideas into village public affairs coordination. Responsive mechanisms for diverse demands and public opinion provide avenues for ethnic minority rural self-governance. The specific application of people’s democracy in addressing main contradictions in ethnic rural areas establishes a substantive institutionalized public opinion mechanism, emphasizing political responses to diverse demands. Expanding political activities into daily interactions among citizens maximizes the legitimacy of democratic principles in various political processes. *For example, in the Gannan Tibetan Autonomous Prefecture of Gansu Province, farmer cooperatives and cultural associations were established based on local agricultural and ethnic cultural characteristics, nurturing rural elites with a higher level of democratic political literacy (as illustrated in Case6).* Party organizations are integrated into the governance structures of villagers’ self-governance and social organizations. *Gansu Province’s Gannan Tibetan Autonomous Prefecture has established associations responsible for social organizations under the leadership of village party organizations, guiding villagers to participate in autonomous affairs management in an orderly manner (as illustrated in Case6).*

While efficiency in villagers’ self-governance and democratic operations is commendable in certain ethnic minority rural areas, the advancement of villagers’ self-governance encounters impediments stemming from China’s unique state-society dynamics. The emergence of grassroots democracy in Chinese ethnic rural regions is intricately tied to specific historical contexts and governance

frameworks. Nonetheless, the imbalance between state and societal forces, coupled with the absence of essential elements for grassroots democracy in ethnic regions, often impedes the seamless integration of normative democratic principles into the political and social fabric of ethnic rural communities. This discordance between normative values and local ethnic characteristics presents developmental hurdles for grassroots democracy. First, there exists a clash between modern political concepts and cultural traditions. Democracy, being predicated on certain presuppositions, implies that political actors cannot entirely sidestep the influence of ethical, religious, and cultural factors. However, the distinctive religious and cultural traditions in Chinese ethnic regions, along with the longstanding coexistence of ethnic clan organizations with state authority, have resulted in governance inefficiencies. Secondly, there is a disparity in democratic participation. Democratization can be bifurcated into power acquisition and power exercise. In the realm of power acquisition, both formal and informal groups, including ethnic clan organizations, rural elites, and township authorities from ethnic minorities, may curtail villagers' equal participation to varying degrees. Regarding power exercise, as outlined in China's "Organic Law of Village Committees," democratic power exercise encompasses democratic elections, management, decision-making, and supervision. Dominance of village political structures by elite minority groups with kinship ties may engender political disenfranchisement among non-elite factions and Han Chinese, ultimately undermining the efficacy of village democratic governance, decision-making, and supervision. In the governance framework of ethnic minority rural areas, grassroots organizations are driven by political imperatives and, top-down, leverage significant political influence to advance policy implementation. Within the realm of villagers' self-governance, they adopt authoritative-value-informal strategies to forge the adaptive evolutionary traits of a novel rural governance system, thereby fostering the effective

operation of democratic autonomy.

4.3 Adaptive Momentum: Mechanism for Adjusting Governance Model through "Two-way Mobilization"

Under the auspices of China's "Comprehensive Building of a Moderately Prosperous Society" and "Western Development" initiatives, the traditional closed lifestyle structure in ethnic rural areas has been forcefully disrupted, ushering in the gradual emergence of modern production methods. The delayed development in ethnic rural areas has presented significant challenges in policy advancement, exacerbated by the influence of China's "campaign-style" governance, resulting in compulsory and rapid policy changes that have strained the relationship between the national development model and the traditional model in ethnic rural areas. Consequently, this paper conducts empirical research on select cases, revealing that governance by virtue and governance by law, as exemplified in Chinese-style modern governance, play pivotal roles in reconciling public contradictions at the village level and enhancing the efficiency of public affairs governance. Hence, this paper proposes a momentum adjustment mechanism termed "governance model-bidirectional mobilization" to investigate its impact on the governance system of ethnic rural areas.

4.3.1 Adjusting Party Organizations and Personal Relationships through Modern Governance Methods

Chinese-style modern governance methods uphold the autonomy tradition of ethnic rural areas by integrating national-level legal governance with village-level local legal construction, emphasizing the autonomy of village-level entities in legal construction. While national laws possess universality, the unique development trajectory of ethnic rural areas necessitates localized laws and regulations tailored to ensure effective governance. *For instance, in Haohuahong Town, Huishui County, Qiannan Prefecture, Guizhou Province, internally*

established “Village Elder Service Teams” led by respected local elders promptly adjust and modify clan rules in response to villagers’ needs. Traditional customs also play a role in dispute resolution from an operational standpoint (as illustrated in Case2). Judicial bodies should steer villagers towards resolving disputes in “social courts” to mitigate the excessive use of coercive measures. Moreover, there is a concerted effort to harness the self-organizational capacity of rural areas to adapt governance models. In ethnic rural areas, rural self-organization profoundly influences governance, with villagers forming small groups based on kinship ties, fostering an “endogenous order” where collective action strategies evolve based on local needs. For instance, in Yeli Town, Lintan County, Gannan Tibetan Autonomous Prefecture, Gansu Province, family associations and folk song associations serve as self-organizing entities, promoting village integration by linking villagers through shared interests and emotional bonds (as illustrated in Case 6). Instead of resorting to coercive measures, the Chinese government incentivizes active participations in rural self-organizations through economic and political inducements, thereby facilitating personal identity shifts. Consequently, by aligning changes in personal political identity and status, party authority becomes more integrated into rural self-organizations, aligning governance principles with ethnic realities.

In recent years, local elites in ethnic areas have spearheaded novel forms of rural charity fundraising, driven by native cultural influences. In Nujiang Lisu Autonomous Prefecture, Yunnan Province, villagers, entrepreneurs, and migrant workers engage in small-scale crowdfunding to enhance local infrastructure and support vulnerable groups (as illustrated in Case 3). Leveraging local human resources, social networks, and governance by virtue mitigates the fragility of rural governance systems to some extent. Additionally, considering the lack of legal awareness among villagers in ethnic areas and the dominance of clan culture, timely adjustments to legal implementation based on local customs are imperative.

Rule by virtue, characterized by non-coercive grassroots activation, social capital accumulation, and fundamental power penetration, represents an informal governance approach. Utilizing vital informal resources such as local elites and professional social forces, rule by virtue employs emotional mobilization, social support, and psychological comfort to resolve social conflicts in ethnic rural areas, fostering bottom-up hierarchical mobilization. Conversely, rule by law, a formal governance method reliant on governmental authority, regulates behavior through legislation, supervision, and enforcement, enhancing governance legitimacy and ensuring compliance with rules and regulations. The synergistic application of modern governance methods, including rule by virtue and rule by law, can significantly enhance the governance efficiency of ethnic rural areas, while public welfare initiatives and local cultural influences contribute to mitigating governance system fragility. In governing ethnic rural areas, integrating the unique religious and cultural values of ethnic minorities with informal governance methods, supplemented by rule by virtue and rule by law, is vital for fostering ethnic rural development.

4.3.2 Stimulating Villager Participation Enthusiasm through Bidirectional Mobilization Mechanism

Mobilization denotes the state’s coordination of diverse governance entities for the collective administration of public affairs. This collective mobilization encompasses two types: government-initiated mobilization and spontaneous mobilization within society. The former originates from administrative directives, while the latter emerges organically. As the ruling party, the Communist Party of China vertically establishes core party organizations within the government, extending the party structure downward. Collaborating with social organizations through a grid-based structure, it addresses the strategic demands of social mobilization. As grassroots governance capabilities

continue to evolve, higher-level authorities empower society, delegate governance responsibilities to grassroots levels, and institutionalize grassroots rights and duties, incorporating them into performance assessments to reinforce enforcement mechanisms. Bottom-up social mobilization is propelled by party member demonstrations, elite advocacy, and mass participation. Grassroots party members assume a dual role as advocates for party initiatives and representatives of ordinary villagers, crucial in championing and implementing party policies, actively involving villagers, and facilitating effective self-governance. In ethnically diverse rural areas, esteemed local figures are pivotal in driving community engagement in grassroots governance, possessing substantial social capital, robust resource acquisition abilities, and a strong sense of public responsibility.

Integrated governance by political parties and multi-party autonomous governance represents the two primary approaches to rural governance in ethnically diverse regions. The fusion of diverse governance methods enables political parties to mobilize within a structured framework and encourages spontaneous social mobilization among villagers, thereby fostering effective grassroots social governance. On one hand, within China’s distinctive pressure-driven system, each administrative level assumes corresponding tasks. Aligned with the unified directives of the ruling party, government officials predominantly employ formal governance methods such as the rule of law to implement various social management systems established by state mechanisms, reflecting the hierarchical logic of the pressure-driven system. On the other hand, issue-oriented governance necessitates addressing the myriad challenges encountered by villagers in their daily lives. Party members, local elites, social organizations, and other stakeholders adopt roles relevant to villagers’ experiences, mobilizing them to participate in grassroots governance through informal means, thus bridging the gap between national systems and social realities. This approach reflects both political and practical considerations, contributing to

the effective functioning of the “ Party Organization-led Rural Community Governance System Featuring a combination of Self-governance, Rule of law, and Rule of virtue” in ethnically diverse rural areas (as illustrated in **Figure 2**).

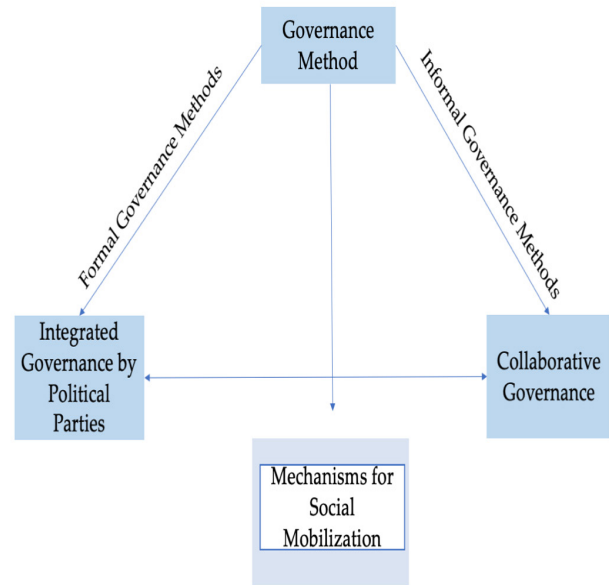


Figure 2 Driving Mechanism Diagram

5. Construction of Public Policy Support System under the “ Party Organization-led Rural Community Governance System Featuring a combination of Self-governance, Rule of law, and Rule of virtue”

This paper establishes a fundamental explanatory framework for the practical logic of governance systems in ethnic rural areas under the “ Party Organization-led Rural Community Governance System Featuring a combination of Self-governance, Rule of law, and Rule of virtue”. Grounded theory research on the aforementioned cases has been employed for this purpose. Furthermore, adhering to the dynamic approach of “evaluation-feedback optimization,” the paper devises a multidimensional public policy support system. The objective is to integrate dynamic evaluation with optimization, align stable system structures with continuous improvement, and enhance governance efficiency in ethnic regions.

5.1 Leveraging Institutional Advantages to Enhance the Public Authority System in Rural Governance

The enhancement of the public authority system hinges on the establishment of a formal institutional framework compatible with ethnic rural areas. This entails not only the macro-level refinement of ethnic regional autonomy systems but also the fine-tuning of policy guidelines and legal regulations for ethnic rural governance. Measures such as publicity, education, and rural policy implementation are employed to establish channels for the integration of national formal systems into grassroots rural areas^[37]. This ensures the authority of legal policies and law enforcement agencies in ethnic rural governance.

5.2 Activating Endogenous Resources in Rural Areas to Optimize Governance Systems in Ethnic Rural Areas

The spontaneous order of rural governance serves as a robust complement to and support for constructing order. Maintaining the resilience and adaptability of spontaneous order is paramount for building a modern Chinese-style ethnic rural governance system. Reconstructing the spontaneous order of ethnic rural governance necessitates several actions, including strengthening village community awareness, preserving rural memories, integrating rural public interests, and rejuvenating the public space of ethnic rural governance. Furthermore, it involves actively enticing rural elites to return, nurturing new talents, and reconstructing the talent pool for ethnic rural autonomy. Supporting and nurturing new rural social organizations such as poverty alleviation initiatives, industrial development projects, economic cooperatives, cultural education programs, and voluntary services are also essential. These efforts aim to fortify the organizational foundation of ethnic rural autonomy and promote the creative transformation of ethnic rural cultures, customs, and ethnic consciousness into a modern rural governance culture, thereby reshaping the

inherent norms of ethnic rural autonomy.

5.3 Enhancing Market Elements and Mechanisms to Strengthen the Economic Foundation of Governance in Ethnic Rural Areas

The developmental status of ethnic regions significantly influences the effectiveness and stability of governance in ethnic rural areas. To leverage the role of market order in ethnic rural governance, several steps are imperative. Firstly, it is crucial to actively promote the revitalization and development of ethnic rural industries, thereby enhancing collective economies and improving the quality of life and welfare of ethnic minorities. Secondly, exploring the development of agricultural economic cooperatives in ethnic rural areas using new property rights structures and equity arrangements is essential. This approach aims to bolster the intensive development of rural economies, mitigate risks, and foster participation in market competition. Thirdly, it is imperative to fully harness market mechanisms in providing rural public services and mixed public goods. This includes developing high-value-added eco-cultural tourism projects, cultivating rural brand industries such as ecological farms, digital farms, and shared farms, extending collective economic industrial chains, and reducing imbalances in resource allocation and phenomena of short-term profit-taking.

6. Conclusion

This paper utilizes ethnic minority villages and towns in seven provinces as sample cases to explore the construction logic of governance systems in ethnic rural areas. Through grounded theory coding analysis, it was found that political parties have established a three-party cooperative production network comprising political parties, governments, and the public. Villagers participate in village governance through legalized autonomous organizations and institutionalized democratic procedures. Additionally, modern governance methods serve as adaptive momentum within the

governance system, effectively regulating the relationship between the government, the market, and the public to maintain the smooth operation of rural governance systems.

While existing studies often focus on typical grassroots governance cases and analyze the micro-mechanisms of governance in ethnic rural areas, they often lack macro-governance logic analysis from an overall perspective. This limits the extraction of intrinsic mechanisms for abstract issues. The potential contribution of this paper lies in constructing an explanatory framework for governance in ethnic rural areas through empirical analysis of multiple cases, bridging macro-theory and micro-operational assumptions. However, it is emphasized that the model presented in this paper can only promote the improvement of governance effectiveness in ethnic rural areas under certain conditions, and the case samples provided are illustrative. Given the high complexity of rural governance in China, blindly copying and imitating this model may result in resource wastage and homogenization phenomena. Therefore, it is essential to use the “Party Organization-led Rural Community Governance System Featuring a combination of Self-governance, Rule of law, and Rule of virtue” as a reference, adapt it to local circumstances, comprehensively consider the foundation of regional governance, and explore how to better leverage the role of grassroots organizations. This approach can promote the organic integration of autonomy, rule of law, and moral governance, thereby enhancing governance effectiveness.

Author Contributions

All authors contributed equally to this work. X.L. was responsible for reviewing and editing, validation, supervision, and investigation. Y.X. was responsible for reviewing and editing, conceptualization, visualization, software, and methodology. J.Z. was responsible for validation, supervision, editing and investigation. All authors have read and agreed to the published version of the manuscript.

Conflicts of Interest

The authors declare that the research was conducted in the absence of any commercial or financial relationships that could be construed as a potential conflict of interest.

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Ethics Statement

The studies involving human participants were reviewed and approved by Biomedical Ethics Committee of Nankai University No. NKUIRB2022092. The patients/participants provided their written informed consent to participate in this study.

Data Availability Statement

The original contributions presented in the study are included in the article/Supplementary Material, further inquiries can be directed to the corresponding author.

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ARTICLE

An Analysis of the Correlation between Employee Compensation Policies and Operating Performance of Accounting Firms

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ABSTRACT

This paper aims to explore the impact of compensation for employees of different ranks on the overall operating performance of accounting firms (hereinafter referred to as firms) and operating performance of the business markets, and provide reference for decision making by firm managers on employee compensation. The results show that 1) judging by overall operating performance, a firm's income from professional practice increases as the average annual salary of partner accountants, manager-level heads, professional team heads and professional assistants increases, or the proportion of employees with the CPA qualification rises; the number of cases entrusted to a firm increases as the average annual salary of partner accountants and professional assistants increases, or the proportion of employees with the CPA qualification rises; 2) judging by the operating performance of business markets, the income from tax service, management consulting, business registration and other business lines increases as the average annual salary of partner accountants and professional team heads rises; the income from public issue of certification documents, tax service and business registration and other business lines increases as the average annual salary of professional assistants rises; a higher proportion of employees with the CPA qualification has a positive impact on the income from management consulting; 3) the shorter the firm age, and the greater the firm size, the better the firm's overall operating performance. **Keywords:** Employee rank; Certified Public Accountant (CPA) qualification; operating performance; business market; accounting firm

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1. Introduction

In the era of knowledge-based economy, the ability of transforming the skills and knowledge possessed by employees into substantive outputs through human resource management has become the most important competitive advantage of enterprise activities ^[1]. ^[2] pointed out that human resource management is a core organizational procedure. ^[3] suggested that it has been an important topic in human resource management research to put the right people in the right positions and help them develop their skills and potentials. Therefore, during the process of enterprise operation, human resources play a very important role and driving force for operating. Enterprise managers in any industry should establish a set of complete human resource management policies, and assign appropriate tasks and missions based on different human resource attributes to achieve the goals of the organization.

Accounting firms (hereinafter referred to as firms) belong to the service industry with intensive professional knowledge and accumulated experience ^[4-7]. When a firm operates for a longer time, more human resources and customer sources are accumulated ^[4]. ^[8] pointed out that human capital of the intellectual capital has a positive impact on innovation and process capital. Innovation capital could affect process capital, process capital could affect customer capital, and customer capital could positively affect operating performance of the enterprise. ^[9] found that the investment of human capital is more efficient than that of tangible capital and structural capital. ^[10] applied the resource-based theory and found that in the dimension of human capital, enterprises should increase and retain their unique talents to improve or maintain their operating performance.

^[7] pointed out that an organization may have many kinds of resources, including tangible resources and intangible resources. From the perspective of economic theory, tangible resources include land, labor and capital, while intangible resources include entrepreneurial spirit. Under the current economic environment, intangible resources have become more important than tangible resources. The key

to the operating effectiveness of an organization depends on the acquisition and effective use of intangible resources, the most important of which is human capital. ^[7] also mentioned that accounting firms themselves belong to a knowledge-intensive service industry. The most important input factor of an accounting firm is human capital. Through their own professional intelligence and accumulated practical experience, they could provide professional customized services for customers with different attributes and business needs. However, during the whole process of providing business services, in addition to training enough professionals, accounting firms also need to have good and sound operating processes. Among them, the most important thing is to establish a complete set of compensation system to stimulate the work motivation of employees, improve job satisfaction, and then provide customers with good service quality, so that the operating performance of the firm can be improved.

According to “2018 Investigation Reports on the Accounting Firm Service Industry” published by the Financial Supervisory Commission ^[11], at present, the professional ranks of the accounting industry can be divided into four levels in descending order: partner accountants, manager-level heads, professional team heads and professional assistants. Secondly, in terms of CPA qualification, they can be divided into those who have obtained the CPA license and those who have not obtained the CPA license. Since accounting firms have a large number of industrial clients ^[12], whether they have enough capabilities and professionals to provide appropriate service quality has triggered the motivation for this study. Whether the current employee structure of the accounting industry adequate to meet the needs of the public issue of certification documents, tax service, management consulting and business registration and other business lines? Which professionals should provide business services under different business market characteristics? These problems make us want to explore the relationship between these two kinds of human capital and the overall operating performance of the firm and the

operating performance of each business market in this study, and put forward specific suggestions on human capital management policies. This is also the main purpose of this paper.

^[13] suggested that the amount of incentive compensation received by employees is an important factor to measure whether managers of accounting firms can motivate employees. ^[14] proposed that the higher the proportion of incentive compensation, the better the performance of the company. ^[15] asserted that along with the increasing high association between incentive compensation and performance as well as incentive provided in compensation contracts, not only agency problems can be reduced, but also positive benefits can be brought to the future performance of enterprises. ^[16] claimed that employee morale and work motivation could be improved through regular increases in compensation and bonus subsidies. According to the research of ^[17], the more fixed compensation employees get, the more willing they are to work for the organization. ^[18] pointed out that providing employees with higher benefits can improve job satisfaction. This paper carries out empirical analysis from the two factors of employee compensation and CPA qualification, and constructs a regression model of the overall operating performance for the income from professional practice and the number of cases entrusted to a firm. In addition, according to the characteristics of the business market, this paper further divides the overall operating performance into four parts, namely, public issue of certification documents, tax service, management consulting and business registration and other business lines, and establishes the regression models for the operating performance of the four business markets as the indicators to measure the performance of individual business markets. Based on the research results of this paper, we hope to provide specific guidance and suggestions for the managers of accounting firms when making the decision on human resource and compensation, and establish a sound set of compensation policies to strengthen employees' sense of belonging to the firm, enhance their job

satisfaction and enthusiasm, and thus improve the operating performance and service quality of the firm.

2. Literature Review and Hypotheses Development

2.1. Researches on human capital

There are a lot of studies on human resource cost and performance. ^[19] found that labor cost includes compensation expenditure, travel expense, transportation expense, pension and employee benefits, and labor cost has a significant positive correlation with firm performance. ^[20] proposed that human cost is positively correlated with firm performance. Accounting firm is a professional service industry. Therefore, human capital is the core input factor of the firm. The quality of professional competence of accountants, professional leaders and professional assistants in a firm can directly and indirectly affect the audit quality and performance of the firm ^[21]. ^[22] pointed out that employee compensation is significantly positively correlated with performance, and enterprises can improve performance by increasing compensation. ^[23] also mentioned that human capital has a direct impact on the performance of listed companies in Australia. ^[24] showed in their studies that in the first few years of the establishment of an enterprise, human capital is the key to the sustainable operation of the enterprise. According to the research of ^[17], the more fixed compensation employees get, the more willing they are to work for the organization.

^[25] assumed that human capital is positively correlated with return on assets, profitability and productivity. ^[18] pointed out that providing employees with higher benefits can improve job satisfaction. ^[6] measured human capital by dividing the total compensation by the total number of employees in the firm, and found that the more the human capital invested, the better the firm's operating performance. ^[12] used human cost as an important input to measure the operating efficiency of a firm. ^[12] claimed that in the operation of a firm, human cost plays a very important role and is the

key to determine the operation and service quality of a firm. In addition, it is also an important input factor for the firm to maintain its operation. ^[13] pointed out that the more the benefits provided by the firm to its employees, the better the firm's overall operating performance. ^[26] assumed that the higher the proportion of human resource cost invested, the higher the operating profit of a firm. ^[7] defined human cost as the total amount of compensation expenditures, meal expenses, employee benefits, reserve for pension, retirement fund and overtime pay. Therefore, in this paper, the average annual salary of employees of each rank was taken as the indicator to measure the firm's investment in human resources.

2.2. Researches on employee ranks

In terms of researches on employee ranks and operating performance, ^[27] pointed out that the higher the rank of managers, the more likely they are able to act as business partners of senior managers and take into account various functions of human resource management. ^[3] found that the job performance of bank employees varies significantly due to different demographic variables. Among them, employees with more than 20 years (inclusive) of service have the highest performance, followed by employees with 10 years (inclusive) to 20 years of service, and employees with five years (inclusive) to 10 years of service. Employees with less than five years of service have the lowest job performance. In addition, supervisors scored higher than non-supervisors. ^[28] explored the relationship between CEO's leadership behavior and enterprise performance, and found that CEO's leadership would affect the attitude of the enterprise's middle and senior managers. A more positive attitude among middle and senior managers would improve enterprise performance.

^[4] found that there was a significant positive correlation between the proportion of certified public accountants in the total number of employees and technical efficiency. ^[13] pointed out that in terms of organizational form, partner accountants in the accounting firm lead the entire work team

to provide services to clients. They suggested that partner accountants should lead manager-level heads, professional team heads and professional assistants, and adopt a specialized mechanism for division of labor, so as to improve the firm's operating performance. ^[13] also suggested that partner accountants and manager-level heads should jointly develop a variety of potential customer groups with different business needs, which may contribute to the diversified business operations of the firm. ^[7] found that the higher the proportion of main outworkers, the higher the firm's total income from professional practice, income from non-professional practice, certification income, non-certification income, main certification income, tax service income, and income from other business lines. Employees of the accounting firm to carry out audit business are mainly professional team heads and professional assistants. In response to the adoption of international accounting standards, increasing the proportion of main outworkers could not only improve work efficiency, but also increase income from professional practice and other incomes ^[7].

2.3. Researches on the CPA license

In terms of researches on the relationship between the CPA license and operating performance, ^[29] pointed out that the accumulation of professional experience and the acquisition of the CPA license are conducive to improving the firm's income from professional practice. ^[30] mentioned that employees with the CPA license could improve their work capabilities, allowing partner accountants have more time to develop business and service the cases, thus helping employees pass the CPA exam, and allowing the firm to expand its client base and strengthen its competitive advantage. ^[31] pointed out that in terms of professional licenses, enterprise managers believe that job seekers may show a more positive working attitude if they have obtained relevant professional licenses in taxation or accounting. ^[26] mentioned that the higher the proportion of employees with the CPA license, the higher the firm's operating profit. In the accounting industry, if an employee has the CPA license, it means that he/she has basic

professional knowledge and skills, and he/she has a considerable degree of professional literacy and training. Accounting firms belong to a very competitive service industry. Therefore, relatively speaking, reputation and service quality may be more important. The higher the proportion of employees with the CPA license in the firm, the better the professional competence and the work quality of the employees. Therefore, firms should make effective use of professionals with the CPA qualification. When communicating and interacting with clients, the business consultation and services provided by professionals with the CPA qualification can be more trusted by clients, which is conducive to improving the overall operating performance of the firm and the operating performance of various business markets.

In the manpower organization structure of accounting firms, there are four ranks from the highest to the lowest, namely, partner accountants, manager-level heads, professional team heads and professional assistants. Each rank is responsible for its own task. This paper aims to explore whether raising the compensation of the employees of these four ranks can improve the overall operating performance of the firm and the operating performance of the four business markets. In addition, this paper wants to further discuss whether the higher the proportion of employees with the CPA qualification, the better the firm's overall operating performance and business market performance will be. First of all, in this paper, income from professional practice and the number of cases entrusted to a firm have been taken as the indicators to measure the overall operating performance of the firm. H1-1 to H1-5 for the income from professional practice and H2-1 to H2-5 for the number of cases entrusted to a firm have been developed respectively as follows:

H1-1: With other conditions unchanged, the average annual salary of partner accountants has a positive impact on the income from professional practice of a firm.

H1-2: With other conditions unchanged, the

average annual salary of manager-level heads has a positive impact on the income from professional practice of a firm.

H1-3: With other conditions unchanged, the average annual salary of professional team heads has a positive impact on the income from professional practice of a firm.

H1-4: With other conditions unchanged, the average annual salary of professional assistants has a positive impact on the income from professional practice of a firm.

H1-5: With other conditions unchanged, the proportion of employees with the CPA qualification has a positive impact on the income from professional practice of a firm.

H2-1: With other conditions unchanged, the average annual salary of partner accountants has a positive impact on the number of cases entrusted to a firm.

H2-2: With other conditions unchanged, the average annual salary of manager-level heads has a positive impact on the number of cases entrusted to a firm.

H2-3: With other conditions unchanged, the average annual salary of professional team heads has a positive impact on the number of cases entrusted to a firm.

H2-4: With other conditions unchanged, the average annual salary of professional assistants has a positive impact on the number of cases entrusted to a firm.

H2-5: With other conditions unchanged, the proportion of employees with the CPA qualification has a positive impact on the number of cases entrusted to a firm.

2.4. Researches on business services of accounting firms

In terms of researches on professional services and operating performance, ^[32] took the accounting industry in the United States from 1995 to 1999 as the sample and divided the business of accounting firms into three categories, namely, audit services, tax

services and management consulting services. They found that management consulting services are more productive than audit services and tax services.^[33] pointed out that in order to expand the scope of services, accounting firms listed tax services and management consulting services as diversified service items, which could improve the operational efficiency of accounting firms.^[6] pointed out that from the perspective of business characteristics, most international accounting firms still take traditional audit business as their main service items, especially paying great attention to financial certifications and tax service business.^[6] suggested that the audit market in Taiwan has become saturated and suggested that accounting firm managers should develop and operate in management consulting business in the future. According to Investigation Reports on the Accounting Firm Service Industry,^[6] divided the professional practice items of the accounting firm into four categories, namely, financial certification, tax service, management consulting and business registration and other business lines.^[13] pointed out that through the specialized division of labor mechanism, each business category provided by the accounting firm is equipped with professionals specializing in audit, tax service, management consulting, accounting and other businesses. This can not only provide clients with complete and detailed professional consultation, but also meet the needs of one-stop service, which is conducive to the improvement of operating performance of the accounting firm. The business content provided by accounting firms is diverse and complex, and their business categories include public issue of certification documents, tax service, management consulting and business registration. In order to meet the needs of clients, diversified business operations can help improve the operating performance of the firm, and then increase the income from professional practice and the number of cases entrusted to the firm.

Based on the professional practice items and scope of accounting firms, this paper divided them into four categories: public issue of certification documents, tax service, management consulting and business registration and other business lines. These

four categories of business income were taken as the measurement indicators for the market operating performance of each business of accounting firms. H3-1 to H3-5 for the business performance of public issue of certification documents, H4-1 to H4-5 for the business performance of tax service, H5-1 to H5-5 for the business performance of management consulting, and H5-1 to H5-5 for the business performance of business registration and other business lines have been set respectively as follows:

H3-1: With other conditions unchanged, the average annual salary of partner accountants has a positive impact on the income from public issue of certification documents.

H3-2: With other conditions unchanged, the average annual salary of manager-level heads has a positive impact on the income from public issue of certification documents.

H3-3: With other conditions unchanged, the average annual salary of professional team heads has a positive impact on the income from public issue of certification documents.

H3-4: With other conditions unchanged, the average annual salary of professional assistants has a positive impact on the income from public issue of certification documents.

H3-5: With other conditions unchanged, the proportion of employees with the CPA qualification has a positive impact on the income from public issue of certification documents.

H4-1: With other conditions unchanged, the average annual salary of partner accountants has a positive impact on the income from tax service.

H4-2: With other conditions unchanged, the average annual salary of manager-level heads has a positive impact on the income from tax service.

H4-3: With other conditions unchanged, the average annual salary of professional team heads has a positive impact on the income from tax service.

H4-4: With other conditions unchanged, the average annual salary of professional assistants

has a positive impact on the income from tax service.

H4-5: With other conditions unchanged, the proportion of employees with the CPA qualification has a positive impact on the income from tax service.

H5-1: With other conditions unchanged, the average annual salary of partner accountants has a positive impact on the income from management consulting.

H5-2: With other conditions unchanged, the average annual salary of manager-level heads has a positive impact on the income from management consulting.

H5-3: With other conditions unchanged, the average annual salary of professional team heads has a positive impact on the income from management consulting.

H5-4: With other conditions unchanged, the average annual salary of professional assistants has a positive impact on the income from management consulting.

H5-5: With other conditions unchanged, the proportion of employees with the CPA qualification has a positive impact on the income from management consulting.

H6-1: With other conditions unchanged, the average annual salary of partner accountants has a positive impact on the income from business registration and other business lines.

H6-2: With other conditions unchanged, the average annual salary of manager-level heads has a positive impact on the income from business registration and other business lines.

H6-3: With other conditions unchanged, the average annual salary of professional team heads has a positive impact on the income from business registration and other business lines.

H6-4: With other conditions unchanged, the average annual salary of professional assistants has a positive impact on the income from business registration and other business lines.

H6-5: With other conditions unchanged, the proportion of employees with the CPA qualification has a positive impact on the income from business registration and other business lines.

3. Research Design

3.1. Data source and sample selection process

In this paper, the data are sourced from the “2016-2018 Investigation Reports on the Accounting Firm Service Industry” database compiled and printed by the Financial Supervisory Commission. In these three years, the total number of observed values of the firm is 3,296. After excluding 478 outliers and removing 1,919 observed values with illogical data, the final number of valid observed values is 899, of which 429 come from partnership firms and 470 from sole proprietorship firms. This paper is prepared based on the above data, and the sample selection process is shown in **Table 1**:

Table 1. Sample Selection Process

Total number of original observed values	3,296
In stage 1, the following observed values were excluded:	
Firm age > 65 years	(11)
Number of firm employees = 0	(25)
Annual salary of firm employees < NTD 10,000	(438)
Income from professional practice = NTD 0	(4)
Subtotal	2,818
In stage 2, missed or illogical observed values were excluded:	
The average annual salary of partner accountants	(165)
The average annual salary of manager-level heads	(1,329)
The average annual salary of professional team heads	(387)
The average annual salary of professional assistants	(38)
Total final valid observed values	899
Partnership firm	429
Sole proprietorship firm	470

3.2. Variable definition

Many past studies took the accounting industry

as the research object and analyzed the operating performance, including [6-7, 12-13, 19, 26, 34-36]. Among them, [36] evaluated the operating efficiency of a firm by taking the income from professional practice and the number of cases entrusted to a firm as output items. [12] found that the higher the total technical efficiency and pure technical efficiency, the higher the income from professional practice and the total income of the firm. The income from professional practice includes four items, namely, the public issue of certification documents, tax service, management consulting and business registration and other business lines. Based on the aforementioned researches on the accounting industry, this paper takes the income from professional practice (TBR) and the number of cases entrusted to a firm (CAS) as the dependent variables for the overall operating performance of the firm, and takes the income from public issue of certification documents (FINR), the income from tax service (TAR), the income from management consulting (MCR), and the income from business registration and other business lines (COR) as the dependent variables for each business market performance of the firm, respectively.

In terms of independent variables, this study discussed from two aspects, namely, employee compensation and CPA qualification. In terms of employee compensation, there are five variables, including the average annual salary of partner accountants (PAR), the average annual salary of manager-level heads (MAN), the average annual salary of professional team heads (SEN), the average annual salary of professional assistants (ASS), and the proportion of employees with the CPA qualification (CPA).

In terms of control variables, [37] found that enterprises with longer firm ages may allocate resources more efficiently over time. [6] found that the longer the firm was established, the better the operating performance. [38] found that the longer the firm age, the more human capital and customer sources could be accumulated, and the more benefits it brings to performance. [13] pointed out that the longer the firm age, the significantly higher the total

income from professional practice, and the more the total number of professional practice, the number of audit business and non-audit business, net income and employee productivity. [35] took variables such as the firm age and the organizational type of the accounting firm as the dependent variables for the business attributes of the firm. [26] pointed out that the longer the firm age, the more the client sources, which could positively help the firm's operating profit. Moreover, the longer the firm age, the more likely it would diversify its business. [7] also pointed out that there is a significant positive relationship between the firm age and the main income of certifications and management consulting. Therefore, in this paper, the time a firm has been established was measured by the firm age (PERIOD).

In [6] study, partnership firms were defined as those consisting of at least two or more certified public accountants and providing financial certification services for public companies, while sole proprietorship firms were defined as those not providing financial certification services for public companies. "Investigation Reports on the Accounting Firm Service Industry" divided the samples into partnership firms and sole proprietorship firms. [39] designed the firm type with dummy variables and found that partnership firms have better operating performance than sole proprietorship firms. [26] pointed out that when a firm's business type is a partnership firm, it will be more active in diversifying its business. Therefore, in this paper, the dummy variables are used to measure whether the firm is a partnership firm or a sole proprietorship firm in terms of business type (TYPE).

[6] mentioned that the operating performance of international accounting firms is better than that of non-international accounting firms. According to [6], who measured the size of a firm by taking the natural logarithm of the total number of employees, the larger the firm size, the better the firm's operating performance. According to [12], who took the total number of employees as the proxy variable of firm size, the larger the firm size, the higher the income from professional practice and total income of a firm. According to [13], who took the total number

of employees of a firm as an indicator to measure the firm size, the larger the firm size, the higher the total income from professional practice, total number of business cases, net income and employee productivity. According to ^[7], who evaluated the operating performance of the firm industry from the perspective of intellectual capital, the larger the firm size, the higher the firm's business and non-income from professional practice. Therefore, in this paper, the firm size was measured in terms of the total

number of employees (EMP).

Taking the wide differences in the business type and size of the accounting industry into consideration, in this paper, firm age (PERIOD), business type (TYPE) and the total number of employees (EMP) were included in the regression model as the control variables. The definitions of all variables mentioned above are summarized as shown in **Table 2**:

Table 2. Summary of Variable Definitions

Variable property	Variable name	Variable definition
Dependent variables	Income from professional practice (TBR)	Measured by taking the natural logarithm of the annual income from professional practice of a firm (including public offering certifications, tax, management consultancy, business registration and other business). (unit: NTD)
	Number of cases entrusted to a firm (CAS)	Measured by taking the natural logarithm of the annual number of cases entrusted to a firm (including public offering certifications, tax, management consultancy, business registration and other business). (unit: case)
	Income from public issue of certification documents (FINR)	It is measured by taking the natural logarithm of the sum by adding up the income from public issue of certification documents, the income from financing certification, the income from other financial certification and the income from income tax certification and declarations. (unit: NTD)
	Income from tax service (TAR)	It is measured by taking the natural logarithm of the sum by adding up the income from tax planning, the income from tax administrative remedy, and the income from other tax service. (unit: NTD)
	Income from management consulting (MCR)	It is measured by taking the natural logarithm of the income from management consulting. (unit: NTD)
	Income from business registration and other business lines (COR)	It is measured by taking the natural logarithm of the sum by adding up the income from business registration and the income from other business lines. (Original unit: NTD)
	Average annual salary of partner accountants (PAR)	Total salaries of partner accountants ÷ Number of partner accountants (unit: NTD)
Independent variables	Average annual salary of manager-level heads (MAN)	Total salaries of manager-level heads ÷ Number of manager-level heads (unit: NTD)
	Average annual salary of professional team heads (SEN)	Total salaries of professional team heads ÷ Number of professional team heads (unit: NTD)
	Average annual salary of professional assistants (ASS)	Total salaries of professional assistants ÷ Number of professional assistants (unit: NTD)
	Proportion of employees with the CPA qualification (CPA)	Number of employees with the CPA qualification ÷ Total number of employees (Unit: percent)
Control variables	Firm age (PERIOD)	Year of survey - year of establishment + 1 (unit: Years)
	Business type (TYPE)	It is a dummy variable, which is set to 1 for partnership firms and 0 for sole proprietorship firms.
	Total number of employees (EMP)	The total number of employees in the accounting firm.

3.3. Multiple regression model

According to the research hypotheses in Part 2 above, in this paper, two sets of regression models of the firm's overall operating performance and the firm's business market performance were developed based on the human resources and compensation of the firm and the characteristics of the industrial operating. Among them, income from professional practice and the number of cases entrusted to a firm were used as indicators to measure the overall operating performance. Furthermore, according to the characteristics of the professional practice of the firm, four items, namely, public issue of certification documents, tax service, management consulting and business registration and other business lines, were taken as the indicators to measure the performance of the business market, and six multiple regression models were established as follows. Through the empirical test, we try to understand the impact of employee compensation policies on the operating performance of the firm, whether they can bring positive benefits, and put forward specific suggestions.

(1) Regression models of the firm's overall operating performance

$$TBR = \alpha_0 + \alpha_1 PAR + \alpha_2 MAN + \alpha_3 SEN + \alpha_4 ASS + \alpha_5 CPA + \alpha_6 PERIOD + \alpha_7 TYPE + \alpha_8 EMP + \varepsilon_i \quad (1)$$

$$CAS = \alpha_0 + \alpha_1 PAR + \alpha_2 MAN + \alpha_3 SEN + \alpha_4 ASS + \alpha_5 CPA + \alpha_6 PERIOD + \alpha_7 TYPE + \alpha_8 EMP + \varepsilon_i \quad (2)$$

(2) Regression model of the firm's business market performance

$$FINR = \alpha_0 + \alpha_1 PAR + \alpha_2 MAN + \alpha_3 SEN + \alpha_4 ASS + \alpha_5 CPA + \alpha_6 PERIOD + \alpha_7 TYPE + \alpha_8 EMP + \varepsilon_i \quad (3)$$

$$TAR = \alpha_0 + \alpha_1 PAR + \alpha_2 MAN + \alpha_3 SEN + \alpha_4 ASS + \alpha_5 CPA + \alpha_6 PERIOD + \alpha_7 TYPE + \alpha_8 EMP + \varepsilon_i \quad (4)$$

$$MCR = \alpha_0 + \alpha_1 PAR + \alpha_2 MAN + \alpha_3 SEN + \alpha_4 ASS + \alpha_5 CPA + \alpha_6 PERIOD + \alpha_7 TYPE + \alpha_8 EMP + \varepsilon_i \quad (5)$$

$$COR = \alpha_0 + \alpha_1 PAR + \alpha_2 MAN + \alpha_3 SEN + \alpha_4 ASS + \alpha_5 CPA + \alpha_6 PERIOD + \alpha_7 TYPE + \alpha_8 EMP + \varepsilon_i \quad (6)$$

In Regression Equations (1) to (6), TBR refers to the income from professional practice; CAS refers

to the number of cases entrusted to a firm; FINR refers to the income from public issue of certification documents; TAR refers to the income from tax service; MCR refers to the income from management consulting; COR refers to the income from business registration and other business lines; PAR refers to the average annual salary of partner accountants; MAN refers to the average annual salary of manager-level heads; SEN refers to the average annual salary of professional team heads; ASS refers to the average annual salary of professional assistants; CPA refers to the proportion of employees with the CPA qualification; PERIOD refers to the firm age; TYPE refers to the business type; EMP refers to the total number of employees; α_0 refers to the intercept term, α_1 ; α_2 , α_3 , α_4 , α_5 , α_6 , α_7 , α_8 refer to the parameters of the regression model; ε_i refers to the error term.

4. Empirical Results

4.1. Descriptive Statistics

The results of the descriptive statistics of all variables in this paper are shown in **Table 3**. In terms of dependent variables, the average mean of the income from professional practice (TBR) and the number of cases entrusted to a firm (CAS) of Panel A (all firms) is 88,416,518 NTD and 700 cases respectively, while the average mean of the income from professional practice and the number of cases entrusted to a firm of Panel B (partnership firms) is 173,122,928 NTD and 1255 cases respectively. All of them are significantly higher than the average mean of the income from professional practice and the number of cases entrusted to a firm of Panel C (sole proprietorship firms) (11,099,390 NTD and 194 cases, respectively). It can be seen that the business size difference between partnership firms and sole proprietorship firms is very large.

For all firms (Panel A), the item with the highest average mean is the income from public issue of certification documents (FINR, 61,140,871 NTD), followed by the income from tax service (TAR, 13,486,466 NTD) and the income from business

registration and other (COR, 10,089,490 NTD), and the item with the lowest average mean is the income from management consulting (MCR, 3,699,690 NTD). For the partnership firms (Panel B), the income from the four business markets is also similar to that of all firms. However, for sole proprietorship firms (Panel C), the income from tax service (TAR) is 1,885,945 NTD, slightly lower than the income from business registration and other business lines (COR), which is 1,925,182 NTD. Limited by business nature, scale and legal norms, the main business items undertaken by sole proprietorship firms are different from those undertaken by partnership firms. However, for both partnership firms and sole proprietorship firms, the income from management consulting (MCR) is the item with the lowest income in the business market. Therefore, it is suggested that accounting firm managers should actively develop and operate this market so as to enhance their competitive advantages.

In terms of independent variables, in all firms (Panel A), the average annual salary of partner accountants (PAR) is 310,910 NTD, the average annual salary of manager-level heads (MAN) is 722,956 NTD, the average annual salary of professional team heads (SEN) is 598,195 NTD, and the average annual salary of professional assistants (ASS) is 388,193 NTD. It is found that, among the four ranks, the average annual salary of partner accountants is the lowest. The reason is that, in practice, the firm's income from professional practice is owned by partner accountants, so some accounting firms no longer separately list the individual practice income of partner accountants. Therefore, in the partner accountant salary item of the original data file, many firms fill in 0 NTD. This phenomenon is even more pronounced for sole proprietorship firms. In addition, we also found that the average annual salary of the employees of all the four ranks of partnership firms (Panel B) is significantly higher than that of the employee of sole proprietorship firms (Panel C).

The average mean of the proportion of employees with the CPA qualification (CPA) in partnership

firms (Panel B) and sole proprietorship firms (Panel C) is 0.171 and 0.145, respectively, with very small differences. The average mean of the proportion of employees with the CPA qualification (CPA) in all firms (Panel A) is 0.157, with nearly 15% of the employees have the CPA qualification, which has become one of the necessary professional conditions to work in accounting firms.

In terms of control variables, the average firm age (PERIOD) of Panel A (all firms) is 22 years. There is little difference between the average firm age of partnership firms (23 years) and sole proprietorship firms (21 years). The longest firm age is 65 years, and the shortest firm age is less than 1 year for the newly established firms. The average mean of the business type (TYPE) of all firms (Panel A) is 0.480, which means that 48% of the research samples in this paper are partnership firms and 52% are sole proprietorship firms, and the proportion of the two kinds of samples is not much different. In terms of the total number of employees (EMP), the average mean for partnership firms (Panel B) is 104 employees and for sole proprietorship firms (Panel C) is 13 employees. There is even a partnership firm with as many as 3,780 employees, samples of the top four accounting firms, while a sole proprietorship firm has only 205 employees at most. By comparison, it can be found that the gap between partnership firms and sole proprietorship firms in terms of firm size is very large. Therefore, firm size should be included as a control variable in subsequent regression analyses.

4.2. Empirical results of the regression model

According to the suggestion of ^[40], the variance inflation factor (VIF) was used to detect the collinearity of variables. When the VIF value is less than 10, it indicates that there is no serious collinearity problem between the independent variables and the control variables. All the VIF values between the independent variables and the control variables of the empirical results of all the regression models below are less than 10, which indicates that there is no obvious collinearity

Table 3. Descriptive Statistics

Panel A: All firms

Variable type	Variable name	Average mean	Median	Minimum	Maximum	Standard deviation
Dependent variables	Income from professional practice (TBR)	88,416,518	11,183,160	4,370	8,016,162,378	602,030,949
	Number of cases entrusted to a firm (CAS)	700	196	0	43,093	3,115
	Income from public issue of certification documents (FINR)	61,140,871	6,686,900	0	5,829,113,521	430,617,374
	Income from tax service (TAR)	13,486,466	285,000	0	1,143,638,945	87,826,272
	Income from management consulting (MCR)	3,699,690	0	0	536,812,062	33,862,072
Independent variables	Income from business registration and other (COR)	10,089,490	928,200	0	933,496,202	64,228,084
	Average annual salary of partner accountants (PAR)	310,910	0	0	6,873,250	795,853
	Average annual salary of manager-level heads (MAN)	722,956	690,000	0	3,550,000	430,597
	Average annual salary of professional team heads (SEN)	598,195	573,700	0	3,448,065	303,089
	Average annual salary of professional assistants (ASS)	388,193	381,000	0	1,440,368	182,375
Control variables	Proportion of employees with the CPA qualification (CPA)	0.157	0.143	0.031	1.000	0.091
	Firm age (PERIOD)	22	23	1	65	11
	Business type (TYPE)	0.480	0.000	0	1	0.500
	Total number of employees (EMP)	56	12	4	3,780	296

Panel B: partnership firm

Variable type	Variable name	Average mean	Median	Minimum	Maximum	Standard deviation
Dependent variables	Income from professional practice (TBR)	173,122,928	20,488,550	1,671,800	8,016,162,378	863,801,577
	Number of cases entrusted to a firm (CAS)	1,255	299	0	43,093	4,435
	Income from public issue of certification documents (FINR)	120,555,093	12,403,000	0	5,829,113,521	618,139,449
	Income from tax service (TAR)	26,195,663	1,246,000	0	1,143,638,945	125,849,090
	Income from management consulting (MCR)	7,338,103	0	0	536,812,062	48,755,021
	Income from business registration and other (COR)	19,034,070	1,636,500	0	933,496,202	91,947,098

Table 3 continued

Variable type	Variable name	Average mean	Median	Minimum	Maximum	Standard deviation
Independent variables	Average annual salary of partner accountants (PAR)	545,417	180,000	0	6,873,250	1,010,818
	Average annual salary of manager-level heads (MAN)	828,436	780,697	0	3,538,432	414,222
	Average annual salary of professional team heads (SEN)	678,110	638,900	0	3,448,065	331,860
	Average annual salary of professional assistants (ASS)	415,626	407,800	0	1,440,368	179,429
	Proportion of employees with the CPA qualification (CPA)	0.171	0.154	0.031	1.000	0.096
Control variables	Firm age (PERIOD)	23	25	1	65	12
	Total number of employees (EMP)	104	22	4	3,780	423

Panel C: sole proprietorship firm

Variable type	Variable name	Average mean	Median	Minimum	Maximum	Standard deviation
Dependent variables	Income from professional practice (TBR)	11,099,390	6,606,425	4,370	241,641,789	22,189,272
	Number of cases entrusted to a firm (CAS)	194	126	0	3,440	296
	Income from public issue of certification documents (FINR)	6,909,592	4,178,900	0	144,985,073	13,335,273
	Income from tax service (TAR)	1,885,945	133,484	0	87,624,649	5,744,747
	Income from management consulting (MCR)	378,672	0	0	24,164,179	1,753,180
	Income from business registration and other (COR)	1,925,182	418,000	0	121,251,260	6,594,225
Independent variables	Average annual salary of partner accountants (PAR)	96,860	0	0	5,944,003	429,062
	Average annual salary of manager-level heads (MAN)	626,677	590,595	0	3,550,000	423,046
	Average annual salary of professional team heads (SEN)	525,251	507,449	0	2,946,703	253,404
	Average annual salary of professional assistants (ASS)	363,153	355,173	0	1,373,850	181,625
	Proportion of employees with the CPA qualification (CPA)	0.145	0.125	0.040	1.000	0.085
Control variables	Firm age (PERIOD)	21	21	1	52	10
	Total number of employees (EMP)	13	9	4	205	18

Note: 1. TBR: income from professional practice; CAS: number of cases entrusted to a firm; FINR: income from public issue of certification documents; TAR: income from tax service; MCR: income from management consulting; COR: income from business registration and other; PAR: average annual salary of partner accountants; MAN: average annual salary of manager-level heads; SEN: average annual salary of professional team heads; ASS: average annual salary of professional assistants; CPA: proportion of employees with the CPA qualification; PERIOD: firm age; TYPE: business type; EMP: total number of employees. 2. The total number of samples is 899 firms. 3. The unit of dependent variables (TBR, CAS, FINR, TAR, MCR, COR) and independent variables (PAR, MAN, SEN, ASS) is NTD; the unit of firm age (PERIOD) is year(s); the unit of total number of employees (EMP) is the number of people.

problem between the variables. In addition, the error term of the regression model was tested by Durbin-Watson (D-W value) in this study. If the D-W value is between 1.5 and 2.5, it means that there is no autocorrelation between the error terms. The D-W values of the empirical results of all the regression models below in this paper are between 1.5 and 2.5, which is within the acceptable range. Therefore, there is no autocorrelation problem between error terms of the regression model.

4.2.1. Overall operating performance results of a firm

The regression results of the income from professional practice in **Table 4** shows that adjusted R^2 is 0.901 and F value is 1,018.444, reaching a statistically significant level of 1%, which means that the model fit is very good. In terms of independent variables, the average annual salary of partner accountants (PAR), the average annual salary of manager-level heads (MAN), the average annual salary of professional team heads (SEN), the average annual salary of partner accountants (ASS), and the proportion of employees with the CPA qualification (CPA) have a significant positive impact on the income from professional practice (TBR). This means that a firm's income from professional practice increases as the average annual salary of partner accountants, manager-level heads, professional team heads and professional assistants increases, or the proportion of employees with the CPA qualification rises; Therefore, H1-1, H1-2, H1-3, H1-4 and H1-5 are valid.

In terms of control variables, except that firm age (PERIOD) has a significant negative impact on the total income from professional practice, both business type (TYPE) and total number of employees (EMP) have a significant positive impact on the income from professional practice (TBR). In other words, the longer the firm age, being a partnership firm, and the larger the firm size, the higher the income from professional practice of a firm.

The regression results of the number of cases entrusted to a firm in **Table 5** shows that adjusted R^2 is 0.437 and F value is 87.974, reaching a

statistically significant level of 1%, which means that the goodness of fit of the model is very good. In terms of independent variables, except the insignificant and significant negative effects of the average annual salary of manager-level heads (MAN) and the average annual salary of professional team heads (SEN) respectively, which are opposite to the expected direction, the average annual salary of partner accountants (PAR), the average annual salary of professional assistants (ASS), and the proportion of employees with the CPA qualification (CPA) has a significant positive impact on the number of cases entrusted to a firm (CAS). In other words, the number of cases entrusted to a firm increases as the average annual salary of partner accountants and professional assistants increases, or the proportion of employees with the CPA qualification rises; Therefore, H2-1, H2-4 and H2-5 are valid.

In terms of control variables, except that the total number of employees (EMP) has a significant positive impact on the number of cases entrusted to a firm (CAS), all the remaining variables have a significant negative impact. In other words, the longer the firm age, being a sole proprietorship firm, and the larger the firm size, the more the number of cases entrusted to a firm.

According to the classification method of the database, in this paper, business type (TYPE) was divided into two groups of firm samples, namely, partnership firms (TYPE=1) and sole proprietorship firms (TYPE=0), and Regression Models (1) and (2) were re-applied. The results are shown in **Table 6**. The results of partnership firms (Panel A) show consistent empirical results with the overall operating performance of all firms in **Table 4** and **Table 5**. In other words, the firm's overall operating performance improves as the average annual salary of partner accountants and professional assistants increases, or the proportion of employees with the CPA qualification rises; This result means that partner accountants and professional assistants are very important human resources for partnership firms, and providing higher compensation to them can improve their job satisfaction and strengthen

their senses of belonging to the firm, which may help to increase the firm’s income from professional practice and the number of cases entrusted to the firm. For partnership firms, compared with firms with a lower proportion of employees with the CPA qualification, firms with a higher proportion of employees with the CPA qualification are more likely to convey a sense of identity and credibility to clients when conducting business services. For sole proprietorship firms (Panel B), except that the proportion of employees with the CPA qualification (CPA) has no significant impact on the income from professional practice (TBR), all the remaining empirical results are roughly the same as that in **Table 4** and **Table 5**. It is also found that the proportion of employees with the CPA qualification

(CPA) has no significant effect on the income from professional practice for sole proprietorship firms. Compared with partnership firms, CPA licenses have no significant effect on the increase of the income from professional practice for sole proprietorship firms. However, it can have a significant positive impact on the operating performance in terms of the number of cases entrusted to the firm for sole proprietorship firms.

In terms of control variables, the shorter the firm age and larger the firm size of the partnership firm, the more the income from professional practice and the number of cases entrusted to the firm. The larger the firm size of the sole proprietorship firm, the better the overall operating performance of the firm.

Table 4. Regression Results of the Income from Professional Practice

$$TBR = \alpha_0 + \alpha_1 PAR + \alpha_2 MAN + \alpha_3 SEN + \alpha_4 ASS + \alpha_5 CPA + \alpha_6 PERIOD + \alpha_7 TYPE + \alpha_8 EMP + \epsilon_i$$

Variable property	Variable name	Anticipation symbol	Coefficient value	Standard error	t value	Significance (one-tailed)	VIF	Sequence number of the hypothesis	Whether the hypothesis is valid or not
	Constant term		12.813	0.068	188.342	<0.000***			
Independent variables	PAR	+	0.000	0.000	5.314	<0.000***	1.785	H1-1	Yes
	MAN	+	0.000	0.000	6.019	<0.000***	1.523	H1-2	Yes
	SEN	+	0.000	0.000	6.568	<0.000***	1.447	H1-3	Yes
	ASS	+	0.000	0.000	11.794	<0.000***	1.323	H1-4	Yes
	CPA	+	0.365	0.162	2.251	0.013**	1.227	H1-5	Yes
Control variables	PERIOD	+	-0.002	0.001	-1.865	0.031**	1.105		
	TYPE	+	0.064	0.033	1.928	0.027**	1.553		
	EMP	+	0.987	0.021	46.296	<0.000***	2.676		
	R ²				0.902				
	Adjusted R ²				0.901				
	F value				1,018.444	<0.000***			
	D-W value				2.092				

Note: 1. TBR: income from professional practice; PAR: average annual salary of partner accountants; MAN: average annual salary of manager-level heads; SEN: average annual salary of professional team heads; ASS: average annual salary of professional assistants; CPA: proportion of employees with the CPA qualification; PERIOD: firm age; TYPE: business type; EMP: total number of employees. 2. It adopts the one-tailed test, with ***, ** and * indicating statistically significant levels less than 1%, 5% and 10%, respectively. 3. “Yes” means that the hypothesis is valid, and “No” means that the hypothesis is not valid. 4. Significance p-value<0.000 indicates a very small number. 5. The total number of samples is 899 firms.

Table 5. Regression Results of the Number of Cases Entrusted to a Firm

$$CAS = \alpha_0 + \alpha_1 PAR + \alpha_2 MAN + \alpha_3 SEN + \alpha_4 ASS + \alpha_5 CPA + \alpha_6 PERIOD + \alpha_7 TYPE + \alpha_8 EMP + \epsilon_i$$

Variable property	Variable name	Anticipation symbol	Coefficient value	Standard error	t value	Significance (one-tailed)	VIF	Sequence number of the hypothesis	Whether the hypothesis is valid or not
Independent variables	Constant term		-3,883.047	396.095	-9.803	<0.000***			
	PAR	+	0.001	0.000	9.142	<0.000***	1.785	H2-1	Yes
	MAN	+	-0.000	0.000	-0.536	0.296	1.523	H2-2	No
	SEN	+	-0.000	0.000	-1.491	0.068*	1.447	H2-3	No
	ASS	+	0.001	0.000	1.822	0.035**	1.323	H2-4	Yes
Control variables	CPA	+	4,806.014	945.293	5.084	<0.000***	1.227	H2-5	Yes
	PERIOD	+	-20.269	7.454	-2.719	0.004***	1.105		
	TYPE	+	-1,221.778	194.519	-6.281	<0.000***	1.553		
	EMP	+	1,636.048	124.077	13.186	<0.000***	2.676		
	R ²					0.442			
Adjusted R ²					0.437				
F value					87.974	<0.000***			
D-W value					1.972				

Note: 1. CAS: number of cases entrusted to a firm; PAR: average annual salary of partner accountants; MAN: average annual salary of manager-level heads; SEN: average annual salary of professional team heads; ASS: average annual salary of professional assistants; CPA: proportion of employees with the CPA qualification; PERIOD: firm age; TYPE: business type; EMP: the total number of employees. 2. It adopts the one-tailed test, with ***, ** and * indicating statistically significant levels less than 1%, 5% and 10%, respectively. 3. "Yes" means that the hypothesis is valid, and "No" means that the hypothesis is not valid. 4. Significance p-value<0.000 indicates a very small number. 5. The total number of samples is 899 firms.

4.2.2. Business market performance results of a firm

According to the income from four business markets, this paper further carries out the regression analysis. Regression results from **Table 7** to **Table 10** show that the average annual salary of partner accountants (PAR) and the average annual salary of professional team heads (SEN) have significant positive effects on the income from tax service (TAR), the income from management consulting (MCR) and the income from business registration and other business lines (COR). The average annual salary of manager-level heads (MAN) only has a significant positive effect on the income from business registration and other business lines (COR). The average annual salary of professional associates (ASS) also has a significant positive impact on the

income from public issue of certification documents (FINR), the income from tax service (TAR), and the income from business registration and other business lines (COR). In addition, the higher the average annual salary of the four ranks of employees, the higher the income from business registration and other business lines. The proportion of employees with the CPA qualification (CPA) has a significant benefit only for the management consulting business market, but it does not have a positive effect on the public issue of certification documents, tax service, management consulting and business registration and other business lines. This means that employees with the the CPA license can only bring their superiority into full play in the field of management consulting business.

Table 6. Regression Results of the Overall Operating Performance of Partnership Firms and Sole Proprietorship Firms

Panel A: Partnership firm

		Income from professional practice (TBR)				Number of cases entrusted to a firm (CAS)				
Variable property	Variable name	Anticipation symbol	Coefficient value	t value	Sequence number of the hypothesis	Whether the hypothesis is valid or not	Coefficient value	t value	Sequence number of the hypothesis	Whether the hypothesis is valid or not
	Constant term		12.885	167.229***			-6,950.156	-8.310***		
Independent variables	PAR	+	0.000	6.117***	H1-1	Yes	0.001	5.703***	H2-1	Yes
	MAN	+	0.000	6.709***	H1-2	Yes	0.000	0.437	H2-2	No
	SEN	+	0.000	4.808***	H1-3	Yes	-0.001	-0.920	H2-3	No
	ASS	+	0.000	11.280***	H1-4	Yes	0.002	1.963**	H2-4	Yes
	CPA	+	0.634	4.020***	H1-5	Yes	6,091.976	3.557***	H2-5	Yes
Control variables	PERIOD	+	-0.005	-4.054***			-50.100	-3.534***		
	EMP	+	1.000	53.799***			2,142.899	10.619***		
	R ²			0.949				0.497		
	Adjusted R ²			0.948				0.489		
	F value			1,112.304***				59.508***		
	D-W value			1.845				2.002		

Panel B: Sole proprietorship firm

Variable property	Income from professional practice (TBR)					Number of cases entrusted to a firm (CAS)				
	Variable name	Anticipation symbol	Coefficient value	t value	Sequence number of the hypothesis	Whether the hypothesis is valid or not	Coefficient value	t value	Sequence number of the hypothesis	Whether the hypothesis is valid or not
Constant term			12.759	91.465***			-645.105	-9.873***		
Independent variables	PAR	+	0.000	1.669**	H1-1	Yes	0.000	3.451***	H2-1	Yes
	MAN	+	0.000	2.978***	H1-2	Yes	0.000	0.953	H2-2	No
	SEN	+	0.000	5.358***	H1-3	Yes	-0.000	-0.377	H2-3	No
	ASS	+	0.000	6.652***	H1-4	Yes	0.000	1.648**	H2-4	Yes
	CPA	+	0.061	0.204	H1-5	No	525.898	3.743***	H2-5	Yes
Control variables	PERIOD	+	0.001	0.483			0.868	0.845		
	EMP	+	0.975	20.214***			305.922	13.542***		
	R ²			0.719				0.441		
	Adjusted R ²			0.715				0.433		
	F value			168.729***				52.123***		
	D-W value			1.960				2.207		

Note: 1.TBR: income from professional practice; CAS: number of cases entrusted to a firm; PAR: average annual salary of partner accountants; MAN: average annual salary of manager-level heads; SEN: average annual salary of professional team heads; ASS: average annual salary of professional assistants; CPA: proportion of employees with the CPA qualification; PERIOD: firm age; TYPE: business type; EMP: the total number of employees.2.It adopts the one-tailed test, with ***, ** and * indicating statistically significant levels less than 1%, 5% and 10%, respectively.3. “Yes” means that the hypothesis is valid, and “No” means that the hypothesis is not valid.4.429 for partnership firms and 470 for sole proprietorship firms.

Table 7. Regression Results of the Operating Performance of Public Issue of Certification Documents

$FINR = \alpha_0 + \alpha_1 PAR + \alpha_2 MAN + \alpha_3 SEN + \alpha_4 ASS + \alpha_5 CPA + \alpha_6 PERIOD + \alpha_7 TYPE + \alpha_8 EMP + \epsilon_i$									
Variable property	Variable name	Anticipation symbol	Coefficient value	Standard error	t value	Significance (one-tailed)	VIF	Sequence number of the hypothesis	Whether the hypothesis is valid or not
	Constant term		11.676	0.217	53.851	<0.000***			
Independent variables	PAR	+	-0.000	0.000	-2.834	0.003***	1.785	H3-1	No
	MAN	+	-0.000	0.000	-0.043	0.483	1.523	H3-2	No
	SEN	+	0.000	0.000	1.225	0.111	1.447	H3-3	No
	ASS	+	0.000	0.000	2.542	0.006***	1.323	H3-4	Yes
	CPA	+	-0.091	0.517	-0.176	0.430	1.227	H3-5	No
	Control variables	PERIOD	+	0.015	0.004	3.613	<0.000***	1.105	
	TYPE	+	0.008	0.106	0.075	0.470	1.553		
	EMP	+	1.252	0.068	18.433	<0.000***	2.676		
	R ²				0.507				
	Adjusted R ²				0.502				
	F value				114.251	<0.000***			
	D-W value				1.989				

Note: 1. FINR: income from public issue of certification documents; PAR: average annual salary of partner accountants; MAN: average annual salary of manager-level heads; SEN: average annual salary of professional team heads; ASS: average annual salary of professional assistants; CPA: proportion of employees with the CPA qualification; PERIOD: firm age; TYPE: business type; EMP: the total number of employees. 2. It adopts the one-tailed test, with ***, **, * and * indicating statistically significant levels less than 1%, 5% and 10%, respectively. 3. "Yes" means that the hypothesis is valid, and "No" means that the hypothesis is not valid. 4. Significance p-value < 0.000 indicates a very small number. 5. The total number of samples is 899 firms.

Table 8. Regression Results of the Operating Performance of Tax Service

TAR= $\alpha_0 + \alpha_1 \text{PAR} + \alpha_2 \text{MAN} + \alpha_3 \text{SEN} + \alpha_4 \text{ASS} + \alpha_5 \text{CPA} + \alpha_6 \text{PERIOD} + \alpha_7 \text{TYPE} + \alpha_8 \text{EMP} + \epsilon_i$									
Variable property	Variable name	Anticipation symbol	Coefficient value	Standard error	t value	Significance (one-tailed)	VIF	Sequence number of the hypothesis	Whether the hypothesis is valid or not
	Constant term		3.940	1.171	3.365	0.001***			
Independent variables	PAR	+	0.000	0.000	3.139	0.001***	1.785	H4-1	Yes
	MAN	+	-0.000	0.000	-2.007	0.023**	1.523	H4-2	No
	SEN	+	0.000	0.000	2.090	0.019**	1.447	H4-3	Yes
	ASS	+	0.000	0.000	1.728	0.042**	1.323	H4-4	Yes
	CPA	+	-2.888	2.795	-1.033	0.151	1.227	H4-5	No
Control variables	PERIOD	+	-0.031	0.022	-1.425	0.077*	1.105		
	TYPE	+	0.169	0.575	0.294	0.385	1.553		
	EMP	+	1.565	0.367	4.267	<0.000***	2.676		
	R ²				0.118				
	Adjusted R ²				0.110				
	F value				14.876	<0.000***			
	D-W value				1.948				

Note: 1. TAR: income from tax service; average annual salary of partner accountants; MAN: average annual salary of manager-level heads; SEN: average annual salary of professional team heads; ASS: average annual salary of professional assistants; CPA: proportion of employees with the CPA qualification; PERIOD: firm age; TYPE: business type; EMP: the total number of employees. 2. It adopts the one-tailed test, with ***, ** and * indicating statistically significant levels less than 1%, 5% and 10%, respectively. 3. "Yes" means that the hypothesis is valid, and "No" means that the hypothesis is not valid. 4. Significance p-value<0.000 indicates a very small number. 5. The total number of samples is 899 firms.

Table 9. Regression Results of the Operating Performance of Management Consulting

Variable property	Variable name	Anticipation symbol	Coefficient value	Standard error	t value	Significance (one-tailed)	VIF	Sequence number of the hypothesis	Whether the hypothesis is valid or not
$MCR = \alpha_0 + \alpha_1 PAR + \alpha_2 MAN + \alpha_3 SEN + \alpha_4 ASS + \alpha_5 CPA + \alpha_6 PERIOD + \alpha_7 TYPE + \alpha_8 EMP + \epsilon_i$									
Independent variables	Constant term		-2.371	1.045	-2.269	0.012**			
	PAR	+	0.000	0.000	2.758	0.003***	1.785	H5-1	Yes
	MAN	+	0.000	0.000	0.924	0.178	1.523	H5-2	No
	SEN	+	0.000	0.000	1.616	0.054*	1.447	H5-3	Yes
	ASS	+	0.000	0.000	0.827	0.204	1.323	H5-4	No
	CPA	+	4.481	2.493	1.797	0.037**	1.227	H5-5	Yes
Control variables	PERIOD	+	0.076	0.020	3.883	<0.000***	1.105		
	TYPE	+	1.375	0.513	2.680	0.004***	1.553		
	EMP	+	0.891	0.327	2.722	0.004***	2.676		
	R ²				0.153				
	Adjusted R ²				0.145				
	F value				20.053	<0.000***			
	D-W value				2.110				

Note: 1. MCR: income from management consulting; PAR: average annual salary of partner accountants; MAN: average annual salary of manager-level heads; SEN: average annual salary of professional team heads; ASS: average annual salary of professional assistants; CPA: proportion of employees with the CPA qualification; PERIOD: firm age; TYPE: business type; EMP: the total number of employees. 2. It adopts the one-tailed test, with ***, ** and * indicating statistically significant levels less than 1%, 5% and 10%, respectively. 3. "Yes" means that the hypothesis is valid, and "No" means that the hypothesis is not valid. 4. Significance p-value<0.000 indicates a very small number. 5. The total number of samples is 899 firms.

Table 10. Regression Results of the Operating Performance of Business Registration and Other Business Lines

$COR = \alpha_0 + \alpha_1 PAR + \alpha_2 MAN + \alpha_3 SEN + \alpha_4 ASS + \alpha_5 CPA + \alpha_6 PERIOD + \alpha_7 TYPE + \alpha_8 EMP + \epsilon_i$										
Variable property	Variable name	Anticipation symbol	Coefficient value	Standard error	t value	Significance (one-tailed)	VIF	Sequence number of the hypothesis	Whether the hypothesis is valid or not	
	Constant term		8.392	0.534	15.702	<0.000***				
Independent variables	PAR	+	0.000	0.000	1.562	0.060*	1.785	H6-1		Yes
	MAN	+	0.000	0.000	1.441	0.075*	1.523	H6-2		Yes
	SEN	+	0.000	0.000	1.690	0.046**	1.447	H6-3		Yes
	ASS	+	0.000	0.000	5.207	<0.000***	1.323	H6-4		Yes
	CPA	+	-0.582	1.275	-0.457	0.324	1.227	H6-5		No
Control variables	PERIOD	+	-0.025	0.010	-2.525	0.006***	1.105			
	TYPE	+	-0.121	0.262	-0.460	0.323	1.553			
	EMP	+	1.196	0.167	7.146	<0.000***	2.676			
	R ²				0.231					
	Adjusted R ²				0.224					
	F value				33.369	<0.000***				
	D-W value				1.987					

Note: 1. COR: income from business registration and other business lines; PAR: average annual salary of partner accountants; MAN: average annual salary of manager-level heads; SEN: average annual salary of professional team heads; ASS: average annual salary of professional assistants; CPA: proportion of employees with the CPA qualification; PERIOD: firm age; TYPE: business type; EMP: the total number of employees. 2. It adopts the one-tailed test, with ** and * indicating statistically significant levels less than 1%, 5% and 10%, respectively. 3. "Yes" means that the hypothesis is valid, and "No" means that the hypothesis is not valid. 4. Significance p-value<0.000 indicates a very small number. 5. The total number of samples is 899 firms.

5. Conclusion and Suggestion

From the two aspects of employee compensation and CPA qualification, this paper discusses their impact on the overall operating performance and the business market operating performance of accounting firms, and finds out the significant impact factors, so as to provide references for firm managers to make decisions on employee compensation. In this paper, the overall operating performance of the firm is measured by the income from professional practice and the number of cases entrusted to the firm, and the business market operating performance of the firm is measured by the income from public issue of certification documents, the income from tax service, the income from management consulting, and the income from business registration and other business lines. It is found that judging by overall operating performance, a firm's income from professional practice increases as the average annual salary of partner accountants, manager-level heads, professional team heads and professional assistants increases, or the proportion of employees with the CPA qualification rises. The number of cases entrusted to the firm increases as the average annual salary of its partner accountants and professional assistants increases, or the proportion of its employees with the CPA qualification rises. In addition, the shorter the firm age, and the greater the firm size, the better the firm's overall operating performance.

Judging by the operating performance of the firm's four business markets, the income from tax service, management consulting, business registration and other business lines increases as the average annual salary of partner accountants and professional team heads rises. the income from public issue of certification documents, tax service and business registration and other business lines increases as the average annual salary of professional assistants rises; A higher proportion of employees with the CPA qualification has a positive impact on the income from management consulting.

Finally, it is suggested that accounting firm managers should provide more incentive

compensation to their employees. This can increase the firm's income from professional practice and the number of cases entrusted to the firm. Especially for the two ranks of partner accountants and professional assistants, more incentive compensations should be provided. In addition, promotion opportunities should be increased to professional assistants. What's more, it is suggested that accounting firm managers should encourage their employees to obtain the CPA license, which can not only enhance their professional abilities, but also increase customers' trust in the professionalism of the firm's employees. Finally, fair compensation policies are the motive power for boosting the improvement of a firm's operating performance. The establishment of a sound compensation system can not only provide rewards to employees, but also enhance employees' sense of belonging to the firm, hence encouraging them to provide better service quality and strengthen the competitiveness of the firm in the industry.

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ARTICLE

The Role of Social Change Factors in the Criminal Saturation Law

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ABSTRACT

In the crime saturation law, the crime rate of a country depends on the specific time and space conditions of the country, and its distribution and size are limited to the “saturation” of social conditions. Therefore, the process of social change is the process of the criminal rate change. First, based on the regression analysis of the longitudinal crime rate data and relevant social development data in China from 1981 to 2015, this paper searches for the cointegration relationship between the variable sequences. Second, by the Quandt-Andrews breakpoint test, this paper finds the potential structural breakpoints within the sample interval. Finally, based on the structural breakpoints, this paper compares and analyzes the regression results between the sub regions, the sub intervals and overall sample intervals. The study finds that the increase of per capita GDP level, the widening income gap between urban and rural areas, the decline of social education level and the increase of unemployment rate all contribute to the growth of crime rate. China’s relevant departments should implement measures to maintain stability in the period of rapid economic growth, pay attention to social equity problems, increase investment in education, and reduce social unemployment rate.

Keywords: Crime Saturation Rule; Social Change; Cointegration Model; Quandt-Andrews Segmentation Point Test

1. Introduction

Crime is closely related to the development of human society. As a special social behavior, crime brings negative externalities to the residents. According to the criminal saturation law (Enrico Fer-

ri, 1990), there are different criminal behaviors in different social stages. The size and distribution of criminal behaviors depend on various factors in one period. For example, crime can be regarded as a substance dissolved in solution. Under constant external

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conditions, this dissolution is limited to saturation. If the criminal behaviors continue to grow in a certain period, it means that the external environment has changed, that is, the changes in social conditions have promoted the “dissolving” of criminal behavior, and we can observe this change directly from the crime rate data.

Exploring the statistical data of crime rate in China over the past thirty years, we can find that the crime rate in China has maintained a gradually increasing trend. In 1980s, the “Strike Hard” policy didn’t get the expected inhibition effect. The absolute amount of the crime increased from about five hundred thousand in 1978, to two million in 1990, and exceeded four million in 2001 (Li Xiaomeng, 2011). The crime rate continues to fluctuate. From the perspective of the criminal saturation law, the change of external factors increases the “saturation” for criminal acts. It is assumed that crime is a kind of probable nature, and we can use econometric methods to study the relationship between criminal behaviors and many factors, to analyze the internal relations between criminal behavior and social change, which can help managers to make more appropriate crime-controlling policies, and also help us to understand the unbalance behind the crime.

The rest of this paper is arranged as follows: (1) literature review, summarize the internal relationship between the crime rate and the social environment change based on the abroad and domestic researches; (2) variable setting and sample data, introduce independent variables and dependent variable, show descriptive statistics of the crime rate and the social environment development factors in our country, and analyze the stability and cointegration relationship of the data; (3) Quandt-Andrews segmentation point test, explore the effect of major events on the fluctuation of crime rate; (4) empirical analysis, divide the samples into two sub-samples to explore the long-term stable relationship between the variables, and analyze the effect of social environmental factors on the crime; (5) conclusions and suggestions, provide feasible advice for maintaining the social stability based on the empirical regression results.

2. Literature Review

2.1 Theoretical Study

In view of the crime rate in the social environment, foreign scholars have conducted in-depth qualitative research in nineteenth century, and concluded that natural factors, social factors and anthropological factors are the three major factors that affect the crime. These three factors work together to produce the criminal phenomenon in the whole society. Among them, social factors are the most important. American scholar Siegel (1989) divides modern criminal sociology theory into social structure theory, social process theory and social conflict theory. Wu Zongxian (2006) summarized this theory. He believed that criminal behavior was caused by the social factors. Among these factors, the irrational distribution of wealth and the intensification of social inequality were most obvious. These factors would break the original balance and led to a series of anti social behaviors.

2.2 Empirical Study

Under the established factors, the crime rate of a country will periodically fluctuate around a certain number. Once the factors change, the “saturation” of the crime rate in the social environment will change accordingly, thus promoting the fluctuation of the crime rate. In the study of crime rate and social environment, different scholars choose different explanatory variables that can reflect the social changes, and use a large amount of data to carry out quantitative regression analysis. A series of conclusions drawn by these scholars provide valuable reference and inspiration for policy-makers to search for the crime rule and make criminal control measures. Among them, the most common explanatory variables include per capita GDP, social wealth distribution, gender factors, education level, unemployment rate and population mobility.

In the past 30 years, due to the continuous years of high economic growth, China’s society has rapidly changed into a new and open modern society from the

traditional and conservative state. The original culture, customs and concepts have been strongly impacted, and traditional barriers have been broken. The social gap between the rich and the poor has gradually widened, the proportion of sex has changed, the level of education has been promoted, the unemployment rate has undergone great fluctuations, the population flow has become more frequent, and the social relations between different classes, different groups and different individuals are more complex. Under the new social environment, the competition among different interest groups is more intense, which provides excellent housing for criminal offences.

The empirical research on this topic aims at exploring the specific relationship between crime rate and various social change factors. Fleisher (1966) has studied the relationship between income level and criminal behavior for the first time in history. Around 1990s, people began to make more use of economics to analyze the occurrence of criminal behavior. Huang Shaoan and Chen Yili (2007) explored the internal relationship between the multiple macroeconomic factors and the crime rate in China, and found that the expansion of the income gap would increase the crime rate significantly. Chen Chunliang and Yi Junjian (2009) have found that once the expansion of the relative income gap increased by 1% and the crime rate would increase significantly by 0.37%. Of course, some scholars have drawn different conclusions: Neumayer (2005), based on the study of robbery and violent theft, concluded that there is no significant relationship between income inequality and the occurrence of violent crime.

In the empirical analysis, the analytical models can be divided into multiple regression and time series analysis, and scholars have further developed these two basic models from different perspectives in order to reduce the empirical error. Yan Xiaobing (2013) used provincial crime rate data to explore the impact of floating population and income gap from the perspectives of time and space. Zhang Xiangda and Zhang Jiaping (2016) explored the impact of the income gap between urban and rural areas on property crime rate based on the nonlinear model. Qi Liyun

and Yang Xiaowei (2015) mainly adopted the stepwise regression method, eliminating the variables that have little influence on the crime rate or may lead to the collinearity, to construct a suitable multi-variable linear model. Chen Yili (2010) used simple linear models to explore the influence of various factors in China's urbanization process on crime rate. Li Yanjun and Wang Yu (2017) used the generalized moment estimation to overcome the endogeneity of the model and investigate the relationship between crime rate and social welfare. Chen Lipeng, Xu Jianbin and Wei Juan (2014) made use of provincial panel data to study the relationship between Internet factors and crime rate. Fu Yanru (2013) used factor analysis algorithm to innovatively make mathematics practice and cognition of crime rate. Li Shuqi and Liu Qinggang (2009) mainly explored the crime rate from the perspective of urban and rural income inequality, per capita income and unemployment rate. Shi Jinchuan and Wu Xingjie (2009) mainly explored the impact of China's regional income gap and the floating population. Zhang Dandan, Wang also, Xin Meng and Lisa Cameron (2015) analyzed the various factors affecting the crime of migrant workers based on prison survey data. Zhang Yuan, Liu Shijing and Liu Liang (2011) mainly used the urban-rural income gap and the unemployment of migrant workers as independent variables to study their internal relationship with the crime rate.

Although the existed literature research has deeply explored the impact of social and economic factors on the crime rate, the explanatory variables of the study are relatively single, including income level, income gap, gender factors, education level and so on, and there are few empirical studies about major social events or changes. Zhang Yuan, Liu Shijing and Liu Liang (2011) pointed out that the "iron rice bowl" of a large number of workers has been broken since 1990s. The rise of unemployment rate is an important force to promote the fluctuation of the crime rate since the ninetieth century, but this research does not directly analyze the influence of the political decision of China's reform. This paper will focus on this special period and improve the

econometrical model.

2.3 The Main Contribution

First, the previous scholars did not make a clear study of the criminal saturation theory, such as Qi Liyun and Yang Xiaowei (2015) using stepwise regression to filter variables to construct the model. In fact, the explanatory variables used in the research are mostly from the previous literature and their hypothesis, which are lack of theoretical basis and more biased to the simple empirical analysis. The empirical study lacks the support of the theoretical framework. However, this paper is based on Ferri's criminal saturation law, that is, a certain social condition corresponds to a certain crime rate, and the change of social conditions will lead to the change of the "saturation" of the crime rate. Under the theoretical framework of sociology, this paper analyzes the internal relationship mechanism of the criminal rate and social conditions in China, and puts forward a proper econometric model for specific quantitative research.

Second, few scholars have used empirical analysis methods to study the influence of national policy. Most of the literature only qualitatively analyzes the policy measures of the reform of state-owned enterprises. From the crime rate data of 1981-2015 years in China, it is found that in 1990s, the crime rate has been greatly fluctuated, and this trend of fluctuation continues until the beginning of twenty-first century. Based on this fact, this paper uses the Quandt-Andrews segmentation point test method to find out the profound impact of special events on crime rate. The segmentation point test method can find one or more unknown structural segmentation points that may exist in the specified range of observation, which can be regarded as an extension of Chow test.

Third, with reference to previous literature research, this paper selects the per capita GDP level, income gap, education level, and unemployment rate as explanatory variables. Social change is a dynamic process, and the change of crime rate also goes through the path of dynamic development. Because of various factors in the data collection, such as the change of the standard of setting up cases, the con-

cealment of relevant departments, it is undoubtedly that there exists the dark number of crime. Therefore, this paper takes the equilibrium crime rate into consideration when constructing the model, that is, the change of the crime rate reflected in the statistical data is only a part of the expectation, thus adding the analysis of the lagging term and improving the fitting degree of the econometrical model to the reality.

3. Variable Setting and Sample Data

3.1 Variable Setting

3.1.1 Dependent Variables

The explanatory variable is the logarithm of China's crime rate (lnCrime). In particular, the crime rate refers to the number of criminal cases or the number of crimes per one hundred thousand population, which is mainly to avoid the impact of the differences in the population base of different periods. Further logarithm of the sequence is to stabilize the fluctuation of the time series itself. According to the criminal saturation law, this paper uses cointegration test to analyze the long-term stable quantitative relationship between non stationary variables, and do not need to use differential data, so as to avoid the loss of the long-term information. As shown in **Figure 1**, it is found that in the 1990s, the criminal rate was greatly fluctuated, showing a similar shape of a parabolic line, and there might be one or more structural breakpoints. This paper will also discuss the fact.

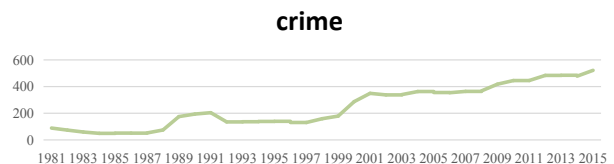


Figure 1. Changes in the criminal offences rate in China in 1981-2015.

3.1.2 Independent Variables

Based on the criminal saturation law, this paper selects 4 social condition factors as explanatory variables of the regression model. In order to reduce

the absolute value of the statistical data and to avoid heteroscedasticity of the explanatory variable data, the logarithm process is carried out in this paper. The explanatory variables are as follows:

(1) The per capita GDP level (GDP). The per capita GDP level can be used to measure the overall income level of our residents. This paper will take the logarithm of GDP data ($\ln GDP$).

(2) The income gap between urban and rural areas (IncomeGap). This paper takes the ratio of per capita disposable income of urban households to the per capita net income of rural residents to represent the income gap between urban and rural areas. The higher the ratio, the greater the income gap between urban and rural residents in China. Because the sequence of urban-rural income gap adopted in this paper is a proportional data, we will not take logarithm of this sequence.

(3) The level of Education (Edu). This paper takes the annual graduation rate of junior school as an indicator to show the level of education in China. Similarly, the absolute value of the sequence is between 0-1, so there is no logarithmic processing.

(4) The unemployment rate (Unemploy). This paper takes the number of registered unemployed population in urban areas to measure the unemployment rate in China. Because the absolute value of the data sequence is large and there is a rising trend, this paper takes logarithm of the sequence and gets $\ln Unemploy$.

3.2 Sample Data

The data related to criminal cases used in this paper is from the Chinese Law Yearbook. The Chinese Law Yearbook, sponsored and led by the China Law Society, is the most authoritative and comprehensive Yearbook in the relevant legal fields of legislation, justice, law education and research in China. This paper adopts the criminal cases data from 1981 to 2015. In addition, we should also recognize the objective existence of the dark number of crime. The dark number of crime is the number of criminal cases that can not be covered in official statistics because of various institutional and statistical factors. Therefore, when selecting data, we should reduce the

gap between statistical crime rate and actual crime rate as far as possible (Bai Jianjun, 2010).

The data related to the calculation of the criminal rate in Chinese legal Yearbook include the statistical data of trial cases, the statistical data of the case investigation by the procuratorial organs, and the statistical data of the criminal cases of the public security organs. After judging from the dark number of crime mentioned above, the crime rate calculated by statistical data of criminal cases of public security organs is the closest to the actual crime rate. In particular, the statistical data of trial cases, the statistical data of the case investigation by the procuratorial organs only include the criminal cases that have been solved, which are closer to the reaction of the state organs to the crime. While the crime calculated by the statistical data of the criminal cases in the public security organs is a relatively real reflection of social crime rate.

The data related to social changes in this paper, including the per capita GDP level, the per capita disposable income of urban households, the per capita net income of rural residents, the annual graduation rate of junior school and the number of registered unemployment in urban areas, are all from the official annual data published by the National Statistics Bureau. The source of data is quite reliable, which provides micro data of high quality for the analysis of this paper, and greatly avoids the effect of data deviation on the research conclusions.

It should be noted that, in the calculation of the income gap between urban and rural areas, the National Statistics Bureau has adopted a new caliber to make statistics on the income of the residents since 2013. Therefore, in 1981-2012, this paper uses the per capita disposable income of urban households / the per capita net income of rural residents to show the income gap between urban and rural areas, and in 2013-2015, this paper uses per capita disposable income of urban residents / per capita disposable income of rural residents under the new caliber. In addition, this paper uses the number of registered unemployed population to reflect the unemployment situation in China, thus there will be potential deviations in the empirical analysis.

3.3 Descriptive Statistics

Since 1981-2015, China has undergone profound changes in the economic system, making the social change in this interval particularly intense, and the conditions of criminal offences are constantly fluctuating. In the empirical study, we selected 1981-2015 as the sample interval, total 35 annual data. The descriptive statistical analysis of the five independent variables examined in this paper is shown in **Table 1**. From skewness data, skewness is negative, indicating that the distribution is negative. From the kurtosis data, the numerical values are less than 3, indicating that the selected data distribution is relatively stable and there are few extreme values. It is also partly attributed to the previous logarithmic operation. In addition, from the first four statistics of the table, it can be seen that the specific values of the macro variables are relatively close, and can effectively avoid the large difference in

the regression parameters.

3.4 Stability Test

The data sequences taken in this paper are all time series. Usually, when analyzing the time series, we first pay attention to whether there are similar trends among different sequences. If there is a similar trend between several sequences, there may be a “pseudo regression” situation when the regression analysis is carried out directly, that is, there is no significant correlation between the variables, but the results of the regression show that the correlation is significant. Generally speaking, before performing regression analysis on time series data, ADF test will be performed first. Therefore, as shown in **Table 2**, this paper uses the ADF model to test the stability of the five variable data of lnCrime, lnGDP, IncomeGap, Edu and lnUnemploy, all of which are nonstationary.

Table 1. Descriptive Statistics.

Statistics	lnCrime	lnGDP	IncomeGap	Edu	lnUnemploy
Mean	5.2565	8.6356	2.6753	58.1086	6.3064
Median	5.2674	8.8126	2.7311	50.7	6.3544
Maximum	6.2575	10.8185	3.3328	95.1	6.8732
Minimum	3.8977	6.2005	1.82	31.5	5.4626
Std	0.7739	1.4488	0.4760	20.4736	0.4667
Skewness	-0.4174	-0.4125	-0.2317	0.5625	-0.3647
Kurtosis	1.8670	1.8043	1.8864	1.8529	1.7688

Table 2. Test of Variable Stability.

Variables	p	ADF	10% Critical Value	5% Critical Value	1% Critical Value	Stationarity
lnCrime	0.6603	-1.231	-2.620	-2.978	-3.696	No
lnGDP	0.4644	-1.636	-2.620	-2.978	-3.696	No
IncomeGap	0.2699	-2.039	-2.620	-2.978	-3.696	No
Edu	0.9834	0.453	-2.620	-2.978	-3.696	No
lnUnemploy	0.7381	-1.041	-2.620	-2.978	-3.696	No

Next, as shown in **Table 3**, this paper takes the first order difference (dlnCrime, dlnGDP, dlnIncomeGap, dEdu, dlnUnemploy) for the 5 variables, and then carries out ADF test. All the difference sequences show stability. Engle and Granger (1987) propose that, for the modeling of nonstationary sequences, although some variables are nonstationary, their linear combinations may be stable when they

have the same integer order. If the linear combination residuals are stationary sequences, then we can find out the long-term stable relations among variables. According to this test result, this paper will draw a stable internal relationship between the criminal rate and social change factors through testing the cointegration relationship.

Table 3. Test of Stability of First-order Difference Variable.

Variables	p	ADF	10% Critical Value	5% Critical Value	1% Critical Value	Stationarity
dlnCrime	0.0056	-3.608	-2.622	-2.980	-3.702	Yes**
dlnGDP	0.0151	-3.294	-2.622	-2.980	-3.702	Yes**
dIncomeGap	0.0160	-3.275	-2.622	-2.980	-3.702	Yes**
dEdu	0.0067	-3.552	-2.622	-2.980	-3.702	Yes**
dlnUnemploy	0.0000	-6.301	-2.622	-2.980	-3.702	Yes***

Note: * indicates significance at 10% significant level, ** indicates significance at 5% significant level, *** indicates significance at 1% significant level.

3.5 Johansen Cointegration Test

In this paper, five first-order-differential variables are tested by cointegration test. Engle and Granger (1987) first gave the Engle-Granger two-step method to explore the cointegration relationship among variables. This method mainly tests whether the residual terms of linear equations are stationary. If the residual terms are stable, the cointegration relationship can be determined. However, there is a shortage of this method: EG test is generally applicable to large-sized samples, and the error depends largely on the size of data samples. The smaller the size of data sample, the greater the error. In addition, the EG test method can not estimate multiple cointegration relationships. In the regression test, the sample interval is small, the annual data is used, and the requirements of the large-sized sample are not satisfied. At

the same time, there may be multiple cointegration relationships among the multiple variables. Therefore, the EG test should not be used.

In this paper, Johansen test is used instead of Engle-Granger two-step test. The Johansen test mainly uses the maximum likelihood estimation (MLE) method to find out whether there is a long-term stable relationship among the variables, and the requirement of the data sample size is not that strict and the multiple cointegration relationship can be estimated effectively. As shown in **Table 4**, there are 2 cointegration relationships according to the Johansen eigenvalue trajectory test. Therefore, there is a long-term stable relationship between variable sequences. In the following empirical analysis, this paper will further explore the long-term stable relationship between crime rate and social change factors.

Table 4. Johansen Eigenvalue Trajectory Test.

Rank	Parameters	Likelihood Ratio	Eigenvalue	Trajectory Value	5% Critical Value
0	30	75.6279	.	97.6300	68.52
1	39	98.9840	0.7572	50.9177	47.21
2	46	111.8091	0.5403	25.2676*	29.68
3	51	118.4399	0.3309	12.0060	15.41
4	54	123.0364	0.2431	2.8129	3.76
5	55	124.4429	0.0817		

Note: * indicates that there are 2 cointegration vectors, that is, there are 2 cointegration relationships.

4. Quandt-Andrews Segmentation Point Test

Since 1980s, China has undergone profound changes, and structural changes have taken place in the social environment, making it possible for us to encounter structural breakpoints in empirical analysis. In this paper, the Quandt-Andrew segmentation

point test is adopted to explore one or more breakpoints in 1981-2015, and then to verify the universality of the criminal saturation law. In the analysis of structural breakpoints, Chow test (1960) is one of the most basic and common methods. The main principle is to compare whether the structure of the two interval is significant. But its shortage is clear. It only aims at the known condition of the breakpoint, but

can not find the unknown breakpoint directly, and can only test one structural breakpoint in the sample interval, but can not study the potentially multiple structural breakpoints.

Quandt and Andrews (1993) has further developed this test based on the principle of Chow test, and proposed a test method for unknown structural breakpoints. Unlike the Chow test, this method can make tests under the unknown segmentation point, and observe whether there exists one or more unknown structural segmentation points in a certain interval. It can be said that the Chow test is the base of Quandt-Andrews segmentation point test. In the sample interval, we apply Chow test for n times, get n groups of test statistics, collate and calculate the new statistics. A single Chow test is used to determine whether there are significant breakpoints by calculating F- statistics. The formula for F- statistics is as follows:

$$F = \frac{(RSS_N - RSS_{n_1} - RSS_{n_2}) / k}{(RSS_{n_1} + RSS_{n_2}) / (N - 2k)} : F(k, N - 2k) \tag{3.1}$$

Among them, N, n_1 , n_2 are the total number of samples and the number of observations respectively after the sample is divided. The RSS is the sum of

the squares of residuals, and the K is the number of parameters including the constant term.

In this paper, the n groups of F- statistics are aggregated into three different statistics (Andrews, 1993 and Andrews and Ploberger, 1994):

(1) the Sup or Maximum statistic, that is, the maximum value of n F- statistics: $\max F = \max_{t_1 < t < t_2} F(t)$

(2) the Exp statistic is calculated as follows:
 $\exp F = \ln\left(\frac{1}{k} \sum_{t=t_1}^{t_2} \exp\left(\frac{1}{2} F(t)\right)\right)$

(3) the Ave statistic, namely the arithmetic mean of n F- statistics: $AveF = \frac{1}{k} \sum_{t=t_1}^{t_2} F(t)$

In the Quandt-Andrews test, this paper eliminates part of the sample data symmetrically, and only carries out the structural breakpoint test in 1986 - 2009, in order to ensure the adequacy of the sample capacity for the regression. As shown in **Table 5**, the likelihood ratio F- statistics in 1990 -1994 were larger, the largest in 1993, then rapidly decreasing. $F(5, 25) = 2.60$, so in 1988 and 1990-1995, we accepted the hypothesis of structural mutation. Therefore, the likelihood ratio F- statistics increased gradually, dropped sharply after reaching the peak in 1993, and then converged to nearly 0 after 2001.

Table 5. The Likelihood Ratio F Statistics of the Symmetrical Samples.

Year	Likelihood Ratio F Statistics	Year	Likelihood Ratio F Statistics	Year	Likelihood Ratio F Statistics
1986	0.9921	1994	6.8365	2002	0.7174
1987	2.3193	1995	2.6873	2003	0.6909
1988	2.8953	1996	1.5947	2004	0.6192
1989	2.4931	1997	1.4994	2005	0.5675
1990	3.3745	1998	1.5383	2006	0.5497
1991	8.5073	1999	1.9550	2007	0.5327
1992	12.7220	2000	1.5162	2008	0.5418
1993	12.8275*	2001	0.9613	2009	0.5067

Note: * indicates that F-statistics is significant at 95% confidence level.

As shown in **Table 6**, we use the likelihood ratio F- statistics derived from **Table 5** to calculate the three statistics of Quandt-Andrews. It is noteworthy that these three statistics do not follow the standard distribution. Hansen (1997) calculates approximate asymptotic P value (also known as Hansen P value), which is used to judge the significance of Quan-

dt-Andrews’s F statistics. In this paper, we compare the statistics with the corresponding Hansen P values, and we can find that all of them are significant. According to the segmentation test, this paper takes 1993 as the boundary, and makes an empirical analysis of the two sub regions respectively.

Table 6. Quandt-Andrews Stability Test Results.

Statistics	Test results
Sup F-statistics (1993)	12.8275*
Exp F-statistics	63.5871*
Ave F-statistics	2.8936*

Note: * indicates that F-statistics is significant at 95% confidence level.

Therefore, this paper takes 1993 as the breaking point, divides the sample interval into 1981-1992 and 1993-2015. Tracing back to the 1992-1993, we can find that the most profound changes in China must be Deng Xiaoping’s “Southern Talk” at the beginning of 1992. It has opened the second stage of China’s reform and opening up, and it is the biggest driving force for the change of social environment since the end of last century. In the second sample interval, the transformation from planned economy to market economic system is imperative. Contradictions and collisions are unavoidable. After the Southern Talk, the social trend of thought was changed from relatively conservative to positive and innovative, and the imbalance of the economic system and social order was adjusted and amended. Therefore, it is of practical significance to test the breaking point by using the Quandt-Andrews segmentation point test.

5. Empirical Analysis

5.1 Overall Sample Analysis

By examining the cointegration relationship, we can directly make regression analysis, to explore the long-term stable relationship between these variables. Specific regression results are shown in formula (4.1) and **Table 7**. The four explanatory variables selected in this paper are all significant.

$$\ln Crime_t = 0.1958 \ln GDP_t + 0.1695 IncomeGap_t - 0.0026 Edu_t + 0.9310 \ln Unemploy_t + \varepsilon_t \tag{4.1}$$

As shown in **Table 7**, from the analysis of the overall sample, the rise of per capita GDP level leads to a rise in crime rate; the rise of the income gap between urban and rural areas leads to a rise in crime rate; the rise of education level leads to the decline in crime rate; the rise of unemployment rate leads to the

rise of criminal rate. The deepening of China’s market economy reform also exerts a subtle influence on people’s sense of worth. The rapid increase of per capita GDP level will gradually catalyze people’s pursuit of material desires, thus bringing about a new round of crime peak. In the classification statistics of the criminal cases of public security organs in Chinese Law Yearbook, the growth of cases with core of property such as robbery, fraud, theft and other cases is far beyond the cases about personal injury such as murder, rape and other cases.

Table 7. The Result of the Impact of Social Change Factors on Crime Rate.

Variables	Parameters	Std Error	t
lnGDP	0.1958	0.1451	1.35*
IncomeGap	0.1695	0.2190	0.77*
Edu	-0.0026	0.0072	-0.36*
lnUnemploy	0.9310	0.3355	2.77*
Cons	-2.6095	1.3134	-1.99

5.2 Analysis of Sub Sample Interval 1981-1992

According to the analysis of the previous paper, this paper divides the sample interval into two stages: 1981-1992, 1993--2015, and makes regression analysis of the two sub - sample intervals respectively. The specific results of the 1981 -1992 sample are shown in **Table 8**. In 1981 -1992, the logarithmic GDP level (lnGDP), the income gap between the rural and urban areas (IncomeGap), the education level (Edu) and the unemployment rate (lnUnemploy) coefficient are all significant. The specific equations are as follows:

$$\ln Crime_t = 0.6936 \ln GDP_t + 1.5142 IncomeGap_t - 0.0515 Edu_t + 3.0533 \ln Unemploy_t + \varepsilon_t \tag{4.2}$$

Table 8. The Impact of Social Conditions on China’s Crime Rate in 1981-1992.

Variables	Parameters	Std Error	t
lnGDP	0.6936	0.3330	2.08*
IncomeGap	1.5142	0.5873	2.58*
Edu	-0.0515	0.0440	-1.17*
lnUnemploy	3.0533	06079	5.02*
Cons	-16.6783	3.2905	-5.07

Note: * indicates significance at 95% confidence level.

This paper analyzes the regression results of the sample interval of 1981-1992. From the regression equation, the per capita GDP level is positively correlated with the criminal rate. The per capita GDP level increases by 1%, and the crime rate will increase by 0.7%. In the previous analysis, this paper has explained that with the promotion of the reform of the market economy and the growth of national income, the social structure has changed from the traditional state to the modern state, and the more complex social relations provide a better training condition for the development of the criminal behaviours. The social trend of thought brought by the rising of economy level has distorted people’s pursuit of material mentality, which is indirectly reflected in the criminal rate.

There is a positive correlation between the income gap and the criminal rate. The proportion of income gap increases by 1 unit, and the criminal rate will increase by 1.5%. The widening of the income gap is an important factor that leads to the frequent occurrence of crimes. With the deepening of China’s reform and opening up, the phenomenon of “Eating the Big Pot” has disappeared for a long time. Due to the differences of circumstances, background and ability, the income gap of the whole society has been gradually enlarged, which has replaced the past absolute fairness. Income inequality has become a more and more severe social problem. This phenomenon will distort the individual psychology, and the contradictions between different social ranks will become more acute, which will lead to the rise of the number of criminal cases.

The level of education in China has a certain inhibitory effect on criminal offences, and the two are negatively correlated. When education level increases by 1 unit, the crime rate will decrease by 0.05%. The negative correlation between education level and criminal rate shows that a country’s active education is conducive to the suppression of crime. Good education can help us to set up a correct outlook on life and values, so that we have a clear concept of crime, so as to improve our own self-control and resist the bad temptation. With the promotion of

reform, China’s society has entered a stage of rapid development. If the level of education at this time cannot match the process of social development, it is likely to lead to the frequent occurrence of blind crime and impulsive crime.

The rise in crime rate is also accompanied by an increase in unemployment rate. If the unemployment rate increases by 1%, the crime rate will increase by 3.05%. The rising unemployment rate means that more people lose their economic resources, which may lead to emotional disorder and psychological distortion, indirectly catalyzing the occurrence of criminal acts. With the reform of the economic system in China, the reform of the state-owned enterprises has forced a large number of workers to leave their jobs and lose their economic sources. The “tide of unemployment”, in fact, has also brought the “tide of crime” together. We can draw the conclusion from the statistical table of the criminal cases of the Chinese Law Yearbook every year. As the unemployment rate rises, property crimes such as fraud, theft, and robbery have increased, which also confirms the results of the empirical analysis.

5.3 Analysis of Sub Sample Interval of 1993-2015

The specific results of the 1993 -2015 sample are shown in **Table 9**. In 1993-2015, the logarithmic per capita GDP level (lnGDP), income gap (IncomeGap), and the education level (Edu) coefficients are all significant. The specific equations are as follows:

$$\ln Crime_i = 1.0269 \ln GDP_i + 0.5739 IncomeGap_i - 0.0310 Edu_i + \varepsilon_{2i} \tag{4.3}$$

Table 9. The Impact of Social Conditions on China’s Crime Rate in 1993-2015.

Variables	Parameters	Std Error	t
lnGDP	1.0269	0.2910	3.53*
IncomeGap	0.5739	0.1792	3.20*
Edu	-0.0310	0.0098	-3.15*
lnUnemploy	0.1883	0.5307	0.35
_Cons	-4.9229	1.6969	-2.90

Note: * indicates significance at 95% confidence level.

We analyzed the regression results of the sample

interval in 1992 -2015. From the regression equation, the increase of criminal rate is also accompanied by the increase of per capita GDP level. The per capita GDP level increases by 1 percentage points, and the crime rate will increase by 1%. By comparing with the results of the previous sample interval, we can see that the increase in per capita GDP level has increased the impact on criminal offences. This paper gives an explanation. In this sample interval, the reform measures that have been hesitant in the past are more drastic, and the market economic system is developing more rapidly, the contradictions between different systems are becoming more and more intense, and the development of the economy has more profound influence on people's behavior. Therefore, the influence of the GDP level on the criminal behavior has been enhanced.

The income gap between urban and rural areas is positively related to the criminal rate. Specifically, the income gap increases by 1 unit, and the crime rate will increase by 0.6%. Compared with the previous sample interval, we can see that the impact of income gap between urban and rural areas on criminal rate has declined. This paper explains that in the stage of deepening the reform of the economic system, the income of rural residents and the disposable income of urban households have increased considerably. Although the income gap between urban and rural areas is still fluctuating around a certain value, the increase of absolute income inhibits the occurrence of criminal offences to a certain extent. Therefore, the influence of income gap between urban and rural areas on criminal rate will be relatively weakened.

Education level still has a restraining effect on the criminal rate. When education level increases by 1 unit, the crime rate will decrease by 0.03%. This conclusion is close to the previous sample interval, that is, the promotion of education level has a restraining effect on criminal offense. Moreover, at 1992-2015, the unemployment rate had little effect on the criminal rate. This paper explains that in the case of empirical analysis, the urban registered unemployed people are used to represent the state

of unemployment, and the data itself has an error. In particular, in the second sample interval, the promotion and deepening of the reform of the state-owned enterprises has caused the "laid-off tide". The unemployment rate of the urban unemployed is only one-sided, which can not cover the unemployment of the whole people in China.

In addition, the regression results are compared and analyzed with the whole sample interval regression results. In the regression analysis of the whole sample interval, it is found that although the positive and negative of the parameters of each variable are consistent, there is a difference in the specific value: the overall sample parameters show that the level of the per capita GDP level has a higher degree of influence, the impact of the income gap between urban and rural areas is weakened, and the effect of educational level is also weakened, and the effect of unemployment rate are in the middle. Although the two empirical methods have verified the criminal saturation law, there are still many differences in the specific analysis of the extent of the impact. It can be seen that the Quandt-Andrews breakpoint analysis method actually matters.

6 Conclusions and Suggestions

In the regression analysis above, based on the purpose of exploring the role of social change factors in the criminal saturation law, this paper uses the cointegration relationship between variables to explore the long-term stability relationship. At the same time, the Quandt-Andrews segmentation point test is used to explore the unknown potential structural breakpoints, and the existence of the breakpoints is determined. After finding the major impact events at the breakpoint, the sample interval is divided into two subsections, and the criminal saturation rule is analyzed, and the similarities and differences between the subinterval, the subinterval and the overall interval are compared. Based on the test and analysis, the following four points are drawn:

First, the growth of per capita GDP level will promote the growth of criminal rate. According to the results of the regression, the per capita GDP

level increases by 1%, which correspondingly leads to the increase of the criminal crime rate by 0.7% (1981 -1992), and the increase of 1% (1993 -2015). The growth of GDP brings not only the increase of wealth, but also the transformation of society, intensifying the fluctuation of social classes and injecting more instability for people's life, which leads to the increase in the number of criminal cases. In addition, this empirical result is also consistent with the fact that the number of property crimes has risen rapidly in recent years.

Second, the income gap between urban and rural areas increases, then the crime rate will also increase. According to the results, the income gap between urban and rural areas rises by 1 unit, and the criminal crime rate will rise by 1.5% (1981-1992) and 0.6% (1993 -2015). The uneven distribution of total wealth will arouse contradictions among different stakeholders and lead to an increase in criminal rate. With the development of China's economic reform, the income gap between urban and rural areas has been rapidly widen, and the criminal rate has also increased significantly. At the end of the twentieth century, since the per capita net income of rural residents has been greatly improved, the increase of absolute value has reduced the probability of the occurrence of criminal offences to a certain extent.

Third, the improvement of education level can restrain the increase of criminal rate to a certain extent. According to the results, when the education level increases by 1 unit, the rate of criminal crime will decrease by 0.05% (1981 -1992) and 0.03% (1993, 1993). Education can improve the moral standards of residents, and can increase the psychological burden of crimes. In addition, the improvement of education level can enhance people's aversion to crime risk, that is, people will be more cautious before they commit criminal acts. From this empirical results, we can learn that the improvement of education level is an effective inhibitor for reducing the criminal rate.

Fourth, the unemployment rate rises, and the criminal rate will also rise. According to the regression results, the rate of criminal offense will rise by 3.05% (1981 -1992) and 0.9310 % (the whole sam-

ple interval) for each unit of unemployment rate. In a social environment where unemployment is relatively high, economic development usually suffers from a severe winter. Under the condition of unhealthy economy, the opportunity cost of crime is relatively low, which will bring crime incentives to some people. At the same time, the rise of the unemployment rate will enhance the social negative emotion, and some of the residents may lose the main economic source, the material demand can not be met, the social class contradiction intensifies, which all lead to criminal acts.

According to the previous empirical results, the following four suggestions are given in order to help managers to formulate more appropriate crime control policies and reduce the probability of crime: (1) in the case of high economic growth, the Economic Management Departments should pay attention to the problems behind and formulate a series of stability measures; (2) the Ministry of Finance needs to pay attention to social income equity, adjust social welfare policies, and try to make the results of economic development benefit social residents as much as possible; (3) the Ministry of Education should increase investment in basic education, and try to improve the level of social education, in order to inhibit the growth of criminal behavior; (4) the Ministry of Labor should speed up the reform and development of the labor market to reduce the level of social unemployment. The specific policy recommendations are as follows:

First, based on the positive correlation between the per capita GDP level and the criminal rate, the policymakers should not only focus on the benefits of the national economic development, but should pay more attention to the negative effects behind them. The rise of the criminal rate is an inevitable trend in the process of reform and development of a country. We can not suppress the economic development only to force the crime rate down, which will be insolvent. In the social stage of rapid economic development, the policy makers should have a series of measures to maintain social stability, thus better helping our society to survive in the stage of institu-

tional transformation. In the mature stage of social development, the rapid growth of criminal rate can also be alleviated. Therefore, speeding up the modernization process is also the direction for managers to make efforts.

Second, based on the positive correlation between the urban-rural income gap and the criminal rate, the policymakers should pay attention to the problem of social equity while pursuing economic development. Reducing the degree of unfair distribution can save the cost of related institutions to a certain extent. From the macroscopic view, the government should make use of social welfare means to provide living allowance for people, formulate appropriate tax system and commit to the absolute income gap of the high and low income groups. From the micro point of view, the government should accelerate the wage growth mechanism, and promote the improvement of the wage payment guarantee mechanism. The growth rate of per capita income and gross national income has been raised synchronously, so as to arouse the enthusiasm of national work.

Third, based on the negative correlation between the educational level and the criminal rate, the policymakers should recognize the inhibitory effect of social education on criminal offences. The educational level of a country is matched with the level of social development, and it can set up a correct moral legal concept, thus reducing the space for the breeding of criminal offences in the process of social development. In addition, the improvement of education level will increase the psychological cost and risk cost of residents' criminal offenses, thereby reducing the incidence of crime. This paper uses the annual rate of junior high school to measure the level of education in China. The managers should increase investment in basic education, establish the mechanism of teacher training, improve the degree of education popularization, and thus effectively improve the education level.

Fourth, based on the positive correlation between the unemployment rate and the criminal rate, the policymakers need to pay more attention to the unemployment problem. The unemployment rate in our

country is maintained at a high level, which makes some residents unable to enjoy the results of economic development. It has buried potential dangers for the future development of our country, and it is also an inevitable contradiction. Managers should improve the social welfare security system, promote the reform and opening of the employment market, increase employment opportunities and promote the reemployment of the unemployed. In addition, managers should enhance the transparency of information disclosure, eliminate information asymmetry as far as possible, and perfect employment laws, so that everyone can get equal opportunities to become rich.

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ARTICLE

A Brief Analysis of the Research on Leadership Style and Positive Organizational Behavior in China's Domestic Corporate Environment

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ABSTRACT

This paper studies leadership style and positive organizational behavior in the context of Chinese enterprises. The purpose of the study is to test the impact of leadership style on positive organizational behavior in the context of Chinese enterprises, verify the correlation between leadership style and positive organizational behavior, and provide guidance for enterprise survival, competition and development. By reviewing the relatively mature and complete theoretical systems of leadership style and positive organizational behavior research at home and abroad, the impact of leadership style on positive organizational behavior in the context of Chinese enterprises is hypothesized from the relationship between vision motivation, leadership charisma, intellectual stimulation, and personality care construction and employee positive behavior. 300 employees were randomly selected as the research subjects, and questionnaires compiled in the form of Likert measurement scale were issued to obtain first-hand research data. The research results show that in the Chinese context, the vision motivation, intellectual stimulation and personality care of leaders have a positive impact on the positive organizational behavior of employees. The positive impact of personalized care on the positive organizational behavior of grassroots employees is greater than that of leadership charisma. Leadership style clarifies the beautiful future development vision for subordinates and can fully mobilize the work initiative of employees.

Keywords: Leadership style; Employee motivation; Organizational behavior

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1. Introduction

Corporate leaders play a vital role in corporate activities. Leadership concepts, styles, behaviors, relationships between leaders and subordinates, personal charm and competence of leaders, etc. affect the work attitudes, behaviors and work performance of organizations and their employees. There are many theories about leadership. With the development of management theory, there are roughly four theoretical schools of leadership theory: early trait theory and behavioral theory, recent contingency theory and current leadership style theory. In the study of leadership behavior style, with the acceleration of social transformation, transformational leadership has gradually become the core concept of leadership style theory. Although the research on transformational leadership theory is very rich, most of it focuses on leaders. There are not many studies that directly explore the impact of organizational factors on positive organizational behavior, but there are many related studies. These studies often indirectly affect positive organizational behavior through organizational effect variables or employee attitude variables. Compared with foreign leadership style and positive organizational behavior theory systems, domestic related research is still in its infancy. So far, no empirical research in related fields has been seen. This article attempts to fill this gap.

2. Literature Review

Leadership is the interaction between leaders and subordinates: this interactive relationship occurs in organizational situations and groups. Leadership is the influence of personal charm, the use of power and the exertion of influence. The purpose of leadership is to achieve the goals of the organization. Therefore, leadership is a process and activity in which leaders use their personal charm to exert their influence, condense the concepts, will and emotions of organizational members, and lead organizational members to achieve organizational goals through efforts in the process of interaction between superiors and subordinates in organizations and groups. After

summarizing the management ideas of Taylor, Fayol, Weber and others, Koontz constructed the first generation of management theory system and believed that the leadership function refers to exerting influence on employees to make them contribute to the realization of organizational and team goals, which is one of the five major management functions. Robbins proposed the second generation management system from the perspective of organizational behavior and pointed out that the leadership function is to focus on motivating and guiding subordinates, communicate effectively and resolve conflicts. It can be seen that the leadership function is a comprehensive concept of leadership willingness, leadership ability, leadership behavior and leadership process. Leadership theory is a theory that studies leadership behavior and its leadership effectiveness, and is one of the key contents of management and psychology research. Factors that affect leadership behavior and its effectiveness and how to improve leadership effectiveness are the core of leadership theory research. The experimental results of Lewin et al. show that among the three typical leadership styles, the democratic leadership style has the best effect, followed by the authoritarian leadership style, and the laissez-faire leadership style has the worst effect. However, Lewin further pointed out that in real work situations, the above three typical leadership styles are not common, and the leadership styles shown by a large number of leaders are often intermediate between different typical leadership styles. The research on employee positive organizational behavior in China originated from the research on "positivity". "Positivity" has a very rich connotation. In the "Modern Chinese Dictionary", "positivity" refers to the thought and performance of being enterprising and working hard (Chao Jizhou, Han Jingti, 2005). In philosophy, positivity refers to the embodiment of human essential power and conscious initiative, and is the subjective and enterprising attitude shown by people in the practical activities of understanding and transforming objective things. In psychology, positivity refers to the subjective and enterprising attitudes such as interest, desire (enthusiasm), energy,

and will shown by people in the practical activities of understanding, transforming, and possessing objective things (Wu Bomin, 1992). From the perspective of motivation, enthusiasm is a psychological phenomenon, that is, a state of excitement, which refers to the initiative, consciousness, enthusiasm, responsibility, courage and tenacity in people's behavior (Chen Xiaodong, 1997). Enthusiasm refers to the active psychological tendency formed by a combination of multiple psychological factors, including the active degree of cognition, the level of emotional excitement, the strength of will, and needs, wishes, desires, goals, intentions, ideals, beliefs, world outlook, outlook on life, values, etc. (Wang Guangli, 1998). In organizational behavior, enthusiasm refers to the release of personal and organizational potential caused by the interaction between individual needs and environment and the coincidence of personal goals and organizational goals (Wang Guangli 1998). Foreign scholars such as Silin (1976), Redding (1990), Westwood and Chan (1992) observed and studied the leadership behavior in Taiwanese enterprises and found some leadership concepts and behavior patterns that are different from those in the West. On this basis, Taiwanese scholars Farh and Cheng (2000) summarized the unique characteristics of paternalistic leadership in Chinese organizations, namely authoritarianism, benevolence, and moral leadership, based on their long-term research on leadership behavior in Taiwanese companies, and analyzed its deep social and cultural roots. Mainland scholars Ling Wenqing (1991) and others, when verifying the PM theory of Japanese scholar Misumi (1985), found that the leadership behavior of Chinese managers not only includes work-oriented and interpersonal-oriented behaviors proposed by Japanese and American scholars, but also includes a unique "personal morality" factor, which is called the C (morality) P (performance) M (interpersonal maintenance) theory of Chinese leadership behavior.

Wang Hui, Xin Rong and Xu Shuying (2004) used the "configuration approach" to summarize the four leadership styles of Chinese corporate leaders in the transition period, namely "advanced", "task-ori-

ented", "employee-oriented" and "hidden". "Advanced leaders" refer to leaders who score above the average in all dimensions except "display of authority". They are creative, adventurous, good at communication, convey vision, care about employees and have strict management. The performance of the enterprise or department led by this type of leader is the best, and the employees are most satisfied with the organization; "task-oriented leadership" refers to leaders who only score above the average in the dimension of "showing authority", while the scores in other dimensions are equal to or below the average. They like to monopolize the power of the enterprise and make major decisions alone. The performance of the enterprise or department led by this type of leader ranks second in the overall sample, and the employees' satisfaction with the organization is also second; "employee-oriented leadership" refers to leaders who score relatively high in the two dimensions of "caring for subordinates" and "coordination and communication"; "hidden leadership" scores much lower than the average in other dimensions except for the average score in the dimension of "showing authority". In other words, although these leaders hold leadership positions in the enterprise, they do not exercise leadership responsibilities. Therefore, the performance of enterprises or departments and employee satisfaction under the management of this type of leadership are at the lowest level. At the same time, they also analyzed the distribution of these four leadership styles under different ownership forms. Enterprises with different ownership forms tend to adopt different leadership styles. Specifically, the survey shows that 52% of private enterprise CEOs show an "advanced" leadership style, 38% of state-owned enterprise CEOs and 36% of foreign-invested enterprise CEOs tend to adopt an "employee-oriented" leadership style, and 11% of state-owned enterprise CEOs and 14% of foreign-invested enterprise CEOs are "task-oriented leaders", 26% of state-owned enterprise CEOs and 26% of foreign-invested enterprise CEOs are "hidden leaders", while private enterprises basically do not have "hidden leaders". Bass et al. believe that transformational leadership is

a four-dimensional structure, including vision motivation (also known as charisma), leadership charm, intelligence stimulation and personalized care. The structure obtained by Li Chaoping's research is both related to and different from Bass's structure. From the perspective of the connotation of the four dimensions of the study, vision motivation and leadership charm are basically consistent with Bass's connotation. Compared with Bass's personalized care, the personalized care in this study has a relatively broader connotation. Bass's personalized care mainly emphasizes the concern for employees' work and personal development, while Li Chaoping's personalized care not only emphasizes the concern for employees' work and personal development, but also emphasizes the concern for employees' families and lives. The difference between Chinese and Western managers' care for employees can be seen from this. Western managers are mainly concerned about employees' "work", while Chinese managers care about employees' lives and families in addition to their work. In the West, employees' families and lives belong to their personal private lives, and managers will not and are not convenient to pay attention to their private lives; in my country, in order to care for employees more comprehensively and considerately, managers will pay more attention to their families and lives. Li Chaoping's research found that China's transformational leadership also includes a unique dimension: moral example. The structural differences between Chinese transformational leadership and Western transformational leadership can be found in the Chinese cultural background. Confucius believed that the cultivation of personal personality and virtue is the cornerstone of society. From the government's perspective, Confucius emphasized the role of moral norms and the role of the elders, and used moral principles to influence and persuade the people, so that the people can be convinced. Therefore, the most useful way to govern a country is to lead by example, lead with virtue, set an example for the young and subordinates, and influence the young and subordinates through subtle influence. In the organization, managers should lead by example, lead

with virtue, set an example for employees, influence subordinates through subtle influence, and enable subordinates to work hard to achieve the goals and mission of the organization. This research result once again confirms Hofstede's point of view: leadership as a social influence process is indeed a phenomenon that is common in all countries in the world, but its concept and composition may vary depending on the national culture. This result of this study once again discovered and verified that Chinese scholar Mr. Ling Wenlun discovered in the early 1980s that there is an important dimension of Chinese leadership: morality, and proposed the CPM leadership theory based on Chinese culture.

3. Research Methods and Design

This study uses a questionnaire survey method for quantitative research. This paper takes corporate employees as the research object and randomly selects 300 people as the research sample. A total of 300 questionnaires were issued, 291 valid questionnaires, and the effective recovery rate is 97.0%. According to the previous questionnaire on the relationship between leadership style and employee positive organizational behavior, this study is divided into four dimensions: leadership charm (4 items), vision motivation (4 items), intelligence stimulation (4 items), and personalized care (4 items). These different dimensions of factors will be used as independent variables in this study. The data from the questionnaire was analyzed using data statistics special analysis software to draw research conclusions.

4. Analysis of Research Results

The descriptive analysis results of the research subjects show that the distribution of the research subjects in this study is as follows: females account for 37.6% and males account for 62.4%. Age distribution: 30 years old and below account for 27.8%, 31

56.4% of the population are between 50 and 49 years old, 13.7% are between 50 and 59 years old, 2.1% are over 60 years old, with 56.4% being the

largest group between 31 and 49 years old, followed by nearly 28% under 30 years old. Average monthly income distribution: 9.3% of the population are between 3,000 yuan and below, 48.8% are between 3,001 yuan and 4,500 yuan, 26.1% are between 4,501 yuan and 6,000 yuan, and 15.8% are over 6,001 yuan. The largest group is between 3,001 yuan and 4,500 yuan. Educational background distribution: 31.3% are high school and below, 57.0% are college and undergraduate, and 11.7% are master's degree or above. The largest group is college and undergraduate, with 57.0% being the largest group, followed by postgraduates (12%). Working years: 9.6% for 1 year or less, 22.7% for 2 to 5 years, 39.98% for 6 to 9 years, and 27.8% for 10 years or more. The largest number of people worked for 6 to 9 years and more than 39.9%. Validity analysis: The Kaiser-Meyer-Olkin measure is 0.795 (greater than 0.5 and less than 1.0). According to the standard of KMO value, 0.795 indicates that it is suitable for factor analysis. By using the principal component analysis method, the factor loading value is 0.651-0.869, which is more than 0.5. This shows that the supplementary validity level of the questionnaire meets the design requirements, and there is a significant correlation between the questions in the questionnaire and the corresponding research variables. The data of the questionnaire is orthogonally rotated. By using the maximum variance method, it can be seen from the results of the rotation component matrix that the questions in the questionnaire are divided into five independent components, and the questions of each component are the questions of the research variables originally set. This basically verifies that the design variables of the questionnaire are relatively independent, and the discriminant validity meets the design requirements. The reliability analysis results are as follows: vision motivation is 0.718; leadership charisma is 0.750; intelligence stimulation is 0.869; personalized care is 0.682; and employee positive organizational behavior is 0.738. The Cronbach α coefficients of each variable exceed the Cronbach α coefficient reference index of 0.6 stipulated in this paper, and the questionnaire data can be used. Pear-

son correlation analysis: When the significance level is 0.01 (bilateral), the absolute values of the correlation coefficients between the independent variables "vision motivation, leadership charisma, intelligence stimulation, personalized care" and the dependent variable "employee positive organizational behavior" are 0.569, 0.627, 0.438, and 0.573, respectively, ranging from 0.40 to 0.80, indicating that there is a positive correlation of medium or above strength between these four variables and the dependent variable. The correlation coefficients between all independent variables are between 0.012 and 0.165, which are all less than the correlation of 0.4, indicating that the independent variables are independent.

5. Conclusion

After using a relatively large sample (300) of Chinese companies to conduct an empirical test with high reliability and validity on the hypothesized relationships between the various variables, the following conclusions can be drawn based on the results of this study.

The results show that: all dimensions of leadership style are positively correlated with employees' positive organizational behavior. For example, regardless of gender, age, length of service, and position, personalized care is always highly valued by employees. Personalized care is valued by all companies and employees. Intellectual stimulation and vision motivation have a positive predictive effect on organizational positive behavior. There are significant differences between leadership style and employee positive organizational behavior variables in the same individual situation. The results show that in the Chinese context, the vision motivation, intellectual stimulation and personalized care of leaders have a positive impact on employees' positive organizational behavior, which is basically consistent with the research of previous scholars. In Western research on the relationship between leadership behavior and organizational behavior: one is that leadership behavior has a positive impact on employee organizational behavior and related factors, and the other is that this effect is not significant or even neg-

ative. This paper uses a large sample of data from Chinese companies to conduct an empirical test and finds that leadership style has a positive impact on employees' positive organizational behavior, indicating that leadership style plays an important role in promoting the improvement of employees' positive organizational behavior.

Leaders can fully mobilize employees' work initiative by clarifying a beautiful vision for the future development for their subordinates. Leaders encourage employees to think innovatively, support employees' innovative activities, give employees individual care, take care of employees' different development needs, and enable employees to better exert their talents. This study infers that, in the difference analysis of personal attributes of the samples obtained this time, the average of vision motivation is much higher than leadership charisma. In other words, the degree of importance attached to vision motivation by the samples in this study is much higher than that of leadership charisma. Since the samples obtained this time are middle-level managers in Chinese companies, and the primary goal is to meet the value of work, the degree of importance attached to vision motivation by the samples in this study is much higher than that of leadership charisma, which is why the conclusion that leadership charisma has no significant effect on positive organizational behavior is obtained. Therefore, managers' Incentives can affect employees' positive organizational behavior more than their own charisma. According to the findings of this study, leadership is an effective predictor of positive organizational behavior, so improving employees' positive organizational behavior can start with shaping a transformational leadership style. Organizational employees should maintain a positive attitude in dealing with people and things. Not only should we be proactive, optimistic, confident, brave and tenacious in affairs, but we should also be humble, honest, tolerant, respectful, courteous and grateful in people. Many researchers have pointed out that different industrial characteristics will lead to different management operations, and the positive correlation between leadership and em-

ployees' positive organizational behavior may not be applicable to all companies. Future research can examine the relationship between leadership styles in different industries and employees' positive organizational behavior. Second, managers' leadership styles are not single, but can only be said to be relatively inclined to a certain style. Some scholars have pointed out that the combination of leadership and transactional leadership, that is, the interaction between the two, is the most effective leadership style and can best promote employee enthusiasm. Future research can examine the impact of the interaction of multiple leadership styles on employees' positive organizational behavior and explore the leadership style that can most effectively promote employee enthusiasm. Third, in future research, a more complete and systematic theoretical model can be established through more comprehensive analysis.

Due to geographical and human resource limitations, only purposive sampling was used, that is, written questionnaires were used, which may change due to differences in time and space. Therefore, the results of this study are limited to the sample of this study and cannot be inferred to other people outside the sample. Secondly, in terms of sampling, the subjects mainly came from developed eastern provinces and cities such as Zhejiang and Shanghai. The region is relatively narrow, and the sample size is not too large, which seems insufficient to fully reflect the positive organizational behavior of employees in different regions, which affects the external validity of this study to a certain extent. Although this study proposed a research framework and referred to relevant research scales after literature discussion and analysis. However, since the directions of each researcher are different, this study only explores the content related to this article, so the focus of the study is on transformational leadership style and positive organizational behavior, but the factors that affect positive organizational behavior are so extensive that they cannot be fully included in this study. This study uses questionnaire survey as the method of empirical research. Although the design of the questionnaire scale is formulated with reference to relevant literature and takes into account the actual characteristics of the sub-

jects. However, the subjects may have subjective cognitive bias and job sensitivity in the questionnaire, and in order to avoid sensitive questions, they may check the answers that go against their original intentions, which may cause measurement errors or deviations in the interpretation of results. This study mainly focuses on the exploration of positive organizational behavior, but only the more important leadership style is selected for the factors that affect positive organizational behavior. In the future, the research can systematically explore the impact on positive organizational behavior.

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ARTICLE

Research on the Development Strategies of Youth Green Entrepreneurship in Sustainable Development

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ABSTRACT

This article explains the connotation and types of green entrepreneurship, analyzes the shortcomings of green entrepreneurship development among young people from the perspective of sustainable development, and proposes countermeasures to promote green entrepreneurship among young people from multiple aspects, including supporting policies, entrepreneurial facilities, education system, and entrepreneurial fund channels.

Keywords: Sustainable development; Youth group; Green entrepreneurship

1. Introduction

Since the reform and opening up, the rapid development of my country's social economy has caused tremendous pressure on the environment. People have gradually changed from simply paying attention to the economic benefits of enterprises to paying attention to the coordinated development of economic benefits, social benefits and environmental benefits of enterprises. Green entrepreneurship has

emerged in this context. Encouraging and guiding contemporary youth to engage in green entrepreneurship, promoting the green and efficient sustainable development of enterprises, and harmonious symbiosis with the natural environment have become an inevitable choice for economic development. my country's attention to green entrepreneurship among young people is in its infancy, and the supporting policies, economy, and education systems are still imperfect. In-depth analysis is needed to explore

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measures to promote and guide the development of green entrepreneurship among young people.

2. The connotation and types of green entrepreneurship

At present, there is no unified definition of green entrepreneurship, and different researchers have different focuses. In general, green entrepreneurship emphasizes the grasp and utilization of opportunities. Its connotation is similar to general entrepreneurship and sustainable development of enterprises. The purpose is to achieve the "three-in-one" entrepreneurial behavior of environmental friendliness, social equality, and economic development, and the core lies in the identification and utilization of opportunities. Some researchers have proposed that green entrepreneurship is "those opportunities that bring future products and services into reality. Green entrepreneurship is the process of identifying, creating and utilizing such opportunities, and also includes who will complete it and what economic, psychological, social and environmental results will be produced." From the individual level of enterprises, green entrepreneurship refers to the greening of enterprise production, marketing, products, etc., which is partial; from the social level, green entrepreneurship is based on the social entrepreneurial environment, with the goal of pursuing greening and sustainable development, and is a form of value creation driven by entrepreneurs. Green entrepreneurship covers concepts such as "entrepreneurship" and "sustainable development", and its types are not the same. Starting from the difference between the two most essential concepts of entrepreneurial motivation and development concept, the types of green entrepreneurship can be roughly classified. In terms of the sources of entrepreneurial motivation, one is driven by survival and the other is driven by opportunities. The former is a passive survival purpose, while the latter generally creates or discovers opportunities to pursue greater development. In terms of development concepts, there are active changes to environmental systems and passive compliance. Advanced companies are proactive and take sustainable development as the

primary strategic choice. They invest more than ordinary companies and are forward-looking and strategic, while obedient companies tend to be passive. Based on this, green entrepreneurship can be divided into four types: obedient companies for survival purposes, advanced companies for survival purposes, obedient companies driven by opportunities, and advanced companies driven by opportunities.

3. Problems in the development of green entrepreneurship among young people from the perspective of sustainable development

3.1 Few green entrepreneurial actions and awareness

Green entrepreneurship is a relatively new concept for enterprise development. According to the survey, many young entrepreneurs agree that green entrepreneurship brings benefits to enterprise development and have a high desire for green entrepreneurship. However, in actual entrepreneurial activities, many young entrepreneurs fall into the quagmire of enterprise survival and passively comply with laws and regulations, which makes the enterprise development abandon forward-looking and advanced, and become a type of enterprise that follows the rules in green entrepreneurship. In such a process of enterprise development, although entrepreneurs are willing to agree with the concept of green development, they still take the temporary economic benefits of the enterprise as the primary task, and then consider social responsibility. In summary, young entrepreneurs show a shallow value recognition in green entrepreneurship, but they take few actions in practice. The lack of application of green concepts is ultimately due to insufficient understanding and lack of deep recognition and cognition.

3.2 Weak green entrepreneurship capabilities

Young people are the main group of entrepreneurial activities in my country at this stage, and the majority of them are people with high school,

vocational college and other education. In the past education, they were rarely exposed to entrepreneurial knowledge education and entrepreneurial ability training. The objective reality of the low education level and insufficient knowledge reserve of the entrepreneurial subjects is the innate deficiency of young entrepreneurs in my country that cannot be ignored. The average cultural level of young entrepreneurs is not high, and the lack of systematic entrepreneurial education and training has greatly weakened the green entrepreneurial ability of the young group. In recent decades, China's education has aimed at cultivating employment-oriented talents, ignoring the cultivation of practical innovation ability and green thinking mode, which directly affects the survival and development of green enterprises and is a major flaw in the entrepreneurial activities of young groups. Inadequate entrepreneurial cognition and entrepreneurial psychological preparation have also become an important factor restricting the sustainable development of young entrepreneurial enterprises.

3.3 The green entrepreneurship mechanism needs to be further improved

The green entrepreneurial environment created by my country for young people is far from mature. In developed countries, young entrepreneurs can obtain relevant industry information and entrepreneurial information through entrepreneurial platforms. Information symmetry is a great support for young entrepreneurs. It is very necessary to keep abreast of the latest entrepreneurial projects and related policy terms to improve the success rate and activity of entrepreneurship.

For green entrepreneurship, we pay special attention to the use and grasp of opportunities, but in terms of information channel construction and information platform construction, my country is still far behind developed countries in Europe and America. On the other hand, the services for youth green entrepreneurship are not standardized enough, the guidance is not in place, and the service efficiency and quality are not high, which has also become an important factor restricting youth from carrying out

green entrepreneurship activities.

3.4 Systematic green entrepreneurship education lags behind

The realization of the entire green entrepreneurship industry cannot rely solely on the "self-study" of individual young entrepreneurs. Systematic green entrepreneurship education and the implantation of green sustainable development concepts are necessary ways to cultivate young people's green entrepreneurship capabilities and entrepreneurial awareness. Although in recent years, youth entrepreneurship education led by the government and coordinated by universities and social institutions has developed to a certain extent, there is little green entrepreneurship education content in the entrepreneurship education system, let alone systematic green entrepreneurship education, which is still far from the actual needs of green entrepreneurship.

4. Development strategies for green entrepreneurship among youth groups

4.1 The government lowers the threshold for young people to start green businesses and strongly supports green businesses

To achieve the vitality and prosperity of green entrepreneurship, the creation of a systematic environment is a basic project. The government should start with macroeconomic policies, encourage and support young people's green entrepreneurship and give the majority of young people real benefits. According to the characteristics of different youth groups, targeted support policies should be formulated, such as college graduates, social science and technology talents, agricultural breeding entrepreneurs, etc., targeted micro loans, technical guidance, and tax reductions should be provided. Training should be provided to unemployed and landless youth to enhance their entrepreneurial skills and green entrepreneurial awareness. A green entrepreneurship information platform should be built for the majority of young people, providing timely information services and public

products to lower the threshold of green entrepreneurship and promote and facilitate the realization of green entrepreneurship among the majority of young people.

4.2 Young people continue to improve themselves and their business management to enhance the viability of green entrepreneurship

In order to enhance the core competitiveness and survival ability of green enterprises, it is crucial to improve the quality of young entrepreneurs. First of all, we must correctly understand the macroeconomic and policy environment, overcome financial, technical and management obstacles, and strive to avoid and offset the unfavorable factors of the macroeconomic environment. Green entrepreneurship focuses on energy efficiency and reasonable resource allocation. Surveys show that 40% of green enterprises eventually go bankrupt in their early stages due to the inability to allocate resources reasonably. When young people start green businesses, the first thing they should pay attention to is their own mastery of new technologies and high management levels. Choosing industries with high added value and high technology content to start businesses can better inject the concept of green development and sustainable development.

4.3 Implement green sustainable innovation and improve green entrepreneurial facilities

The concept of green development can be implemented in enterprises through innovation of green raw materials, green processes, green products, green markets, green organizational structures, and green management models. For basic manufacturing enterprises, the green development model directly brings economic and environmental benefits to the enterprise, effectively avoids pollution caused by non-green processes, and avoids the cost of terminal pollution treatment. It also brings benefits to the corporate image and corporate brand, and ultimately enhances the core competitiveness and survival ability of the enterprise. In the long run, green entrepreneur-

ship is conducive to the coordinated development of corporate benefits, social benefits, and environmental benefits, so that enterprises can embark on the path of sustainable development and create greater value for themselves.

4.4 Strengthen and improve the systematic education system for green entrepreneurship among young people

Establishing a sound youth green entrepreneurship education system is not only to conform to the trend of the times for the development of green entrepreneurship, but also to shape the entrepreneurial ability and tap the potential of contemporary youth, and respond to the actual needs of youth green entrepreneurship. To this end, it is necessary for government departments, schools, Communist Youth League organizations, social institutions, enterprises and other aspects to work together to construct a green entrepreneurship education system. First of all, scientific training course design should be guided by ecological ethics, with ecological economy as the core, focusing on the comprehensive quality training of green entrepreneurship, and highlighting entrepreneurial practice. Marketing, corporate management, financial taxation and related laws and regulations are all necessary knowledge reserves for young people to carry out entrepreneurial activities, and the cultivation of ecological ethics and green entrepreneurship should be fully integrated into entrepreneurship education. The second step is to highlight the ability training in "actual combat", and provide green entrepreneurship consultation, personalized guidance, project training and other services to young people who are interested and capable, so as to improve their actual green entrepreneurship ability. Finally, in order to ensure that green entrepreneurship education does not become a formality, it is also necessary to build a professional teaching staff. We should select entrepreneurship education expert lecturers, business founders with practical green entrepreneurship experience, and ideological and political educators to form a lecture team. They should not only teach entrepreneurship knowledge,

but also share green entrepreneurship practice cases, and cultivate ecological ethics and sustainable development concepts.

5. Conclusion

Encouraging young people to start their own businesses is undoubtedly a favorable direction to ease employment pressure and promote social and economic vitality. Encouraging young people to start green businesses is conducive to the healthy development of social economy and the healthy development of entrepreneurial enterprises. It is also an inevitable choice for social and economic development and environmental pressure. As far as the current situation is concerned, there are still problems of weak awareness and insufficient ability in my country's youth green entrepreneurship. The financing channels, policies and regulations, information platforms and other frameworks in the external environment are not perfect. In recent years, under the leadership of the government, the green entrepreneurial activities of young people in my country have gradually become active and have gradually begun to form a small trend, but efforts should be made to promote and support it. Building a good business environment to guide young people to start green

businesses, establishing supporting laws and preferential policies, building a symmetrical information platform, and improving the education and training system, the government, society, and schools work together to guide more young people to establish advanced green enterprises driven by opportunities. It has become an urgent task to promote youth green entrepreneurship.

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