

Beyond the Traditional: Voluntary Collective Action Initiatives in China's Rural Land Development

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To my family

Abstract

Collective action has emerged as a critical topic in various fields, addressing the governance of shared resources or 'commons'. In land management, the concept of collective action is especially critical due to the inherent tension between individual and communal interests. Mismanagement in this context carries high stakes, leading to significant socio-environmental consequences, including resource depletion, environmental degradation, social inequities, and the erosion of community resilience. In China, traditional rural land management practices, characterized by collective ownership and ambiguous land rights, have often resulted in inefficiency and inequality. Also, their complexities and nuances present unique challenges, with stakeholders often facing a communication gap, especially at the village-level. The introduction of market-oriented reforms, specifically targeting the marketization of Collectively Owned Operating Construction Land (COCL), represents a shift towards engaging rural communities in the market economy. This move necessitates a reevaluation of collective action, focusing on the collaboration and decision-making processes among various stakeholders, including landowners, villagers, and local authorities. Despite extensive research on COCL marketization, a gap exists in understanding the micro-level barriers to market entry and the complex interactions among stakeholders. This study aims to bridge this divide by applying collective action theory to explore these complexities and develop targeted strategies to overcome challenges in COCL marketization.

This thesis addresses three fundamental questions: which theoretical model would

be most appropriate to evaluate collective action, what indicators facilitate or hinder it, and how do stakeholders' relationships affect the collective action. Initially, it explores the conceptual models evaluating stakeholders' market-oriented behavior, highlighting the role of trust in collective action. Subsequently, the thesis innovatively constructs and validates indicators to quantitatively assess social capital, trust, and cooperation performance, thereby enhancing the efficacy of collective action in land policy reform. In the later part, it presents empirical case studies from three different regions in China, employing social network analysis (SNA) and structural equation modeling (SEM) to explore the roles and communication network of stakeholders, assess the impact of social capital on collective action to uncover the dilemmas of collective action, and explore the effectiveness of voluntary collective action for sustainable, effective, and responsible land development practices.

The main findings of this research encompass a thorough analysis of collective action in land marketization, particularly in China. A comprehensive framework that integrates social capital, trust, and cooperation performance would be most appropriate for understanding collective actions and crafting effective policies. Besides, a comprehensive set of indicators is designed and used to assess these elements, enhancing the richness and science of the indicator design and contributing significantly to the field of land management. Additionally, the analysis of communication networks in the pilot case of Beijing highlights the central role of township-level organizations and the marginalization of village-level actors, underscoring the need for more inclusive communication strategies. The research in Henan province identifies

normative bias, stakeholder expression challenges, and trust crisis as major impediments to effective collective decision-making and proposes trust-building strategies as key to overcoming collective action dilemmas. The empirical study in Jiangsu Province finds that social capital effectively fosters trust among stakeholders, which in turn significantly impacts cooperation performance.

This thesis offers significant contributions across theoretical, methodological, empirical, and disciplinary aspects of land management and policy design. Theoretically, it recontextualizes Elinor Ostrom's collective action theory by incorporating trust and risk into the logic of voluntary collective action. Methodologically, it combines qualitative and quantitative approaches, including advanced techniques like SNA and SEM, to measure the relationships between the elements influencing collective action through innovative indicators and case studies. Empirically, it conducts extensive fieldwork in varied Chinese contexts, yielding insights for enhancing policies concerning rural land development (RLD). Disciplinarily, the thesis intersects multiple fields, broadening its impact and applicability in understanding and influencing global land management practices.

This thesis marks a pivotal shift from traditional, top-down land management practices to more inclusive and participatory approaches, especially adapting to the challenges of the evolving China's rural land management practice. It emphasizes the importance of understanding the roles, relationships, and trust dynamics among various stakeholders, highlighting voluntary collective action as crucial for aligning stakeholder incentives and ensuring equitable, effective land management outcomes. This research

not only contributes to land policy reform and collective action theory but also offers practical insights for policymakers and stakeholders, addressing the complexities of land marketization and promoting sustainable rural development. In summary, this work is a key advocate for shifting towards a more inclusive, community-driven model in land management practices.

Zusammenfassung

Die kollektive Aktion hat sich als ein kritisches Thema in verschiedenen Bereichen herausgestellt, das sich mit der Verwaltung gemeinsam genutzter Ressourcen oder "Gemeingüter" befasst. Im Landmanagement ist das Konzept der kollektiven Aktion besonders kritisch aufgrund der inhärenten Spannung zwischen individuellen und gemeinschaftlichen Interessen. Fehlmanagement in diesem Kontext birgt hohe Risiken und führt zu bedeutenden sozio-umweltbedingten Konsequenzen, einschließlich Ressourcenverknappung, Umweltverschlechterung, sozialen Ungleichheiten und der Erosion der Widerstandsfähigkeit der Gemeinschaft. In China haben traditionelle ländliche Landmanagementpraktiken, die durch Kollektiveigentum und unklare Landrechte gekennzeichnet sind, oft zu Ineffizienz und Ungleichheit geführt. Auch ihre Komplexität und Nuancen stellen einzigartige Herausforderungen dar, wobei die Beteiligten oft eine Kommunikationslücke haben, insbesondere auf Dorfebene. Die Einführung von marktorientierten Reformen, die speziell auf die Vermarktung von kollektiv genutztem Betriebsboden (COCL) abzielen, stellt einen Schritt in Richtung Einbindung ländlicher Gemeinschaften in die Marktwirtschaft dar. Dieser Schritt erfordert eine Neubewertung der kollektiven Aktion, die sich auf die Zusammenarbeit und Entscheidungsprozesse unter verschiedenen Beteiligten konzentriert, einschließlich Grundbesitzern, Dorfbewohnern und lokalen Behörden. Trotz umfangreicher Forschungen zur Vermarktung von COCL besteht eine Lücke im Verständnis der mikroökonomischen Barrieren für den Markteintritt und der komplexen Interaktionen zwischen den Beteiligten. Diese Studie zielt darauf ab, diese

Kluft zu überbrücken, indem sie die Theorie der kollektiven Aktion anwendet, um diese Komplexitäten zu erforschen und gezielte Strategien zur Überwindung von Herausforderungen bei der Vermarktung von COCL zu entwickeln.

Diese Arbeit befasst sich mit drei grundlegenden Fragen: welches theoretische Modell am besten zur Bewertung kollektiver Aktion geeignet ist, was Indikatoren sie erleichtern oder behindern, und wie die Beziehungen der Stakeholder die kollektive Aktion beeinflussen. Zunächst erforscht sie die konzeptionellen Modelle, die das marktorientierte Verhalten der Beteiligten bewerten und die Rolle des Vertrauens in der kollektiven Aktion hervorheben. Anschließend konstruiert und validiert die Arbeit innovativ Indikatoren, um soziales Kapital, Vertrauen und Kooperationsleistung quantitativ zu bewerten, wodurch die Wirksamkeit der kollektiven Aktion bei der Reform der Landpolitik verbessert wird. Im späteren Teil präsentiert sie empirische Fallstudien aus drei verschiedenen Regionen in China, wobei sie die soziale Netzwerkanalyse (SNA) und das Strukturgleichungsmodell (SEM) verwendet, um die Rollen und das Kommunikationsnetzwerk der Beteiligten zu erforschen, die Auswirkungen des sozialen Kapitals auf die kollektive Aktion zu bewerten, die Dilemmata der kollektiven Aktion aufzudecken und die Wirksamkeit freiwilliger kollektiver Aktionen für nachhaltige, effektive und verantwortungsvolle Landentwicklungspraktiken zu erforschen.

Die Hauptergebnisse dieser Forschung umfassen eine gründliche Analyse kollektiver Aktionen bei der Landmarktisierung, insbesondere in China. Ein umfassendes Rahmenwerk, das soziales Kapital, Vertrauen und Kooperationsleistung

integriert, wäre am geeignetsten, um kollektive Aktionen zu verstehen und effektive Politiken zu gestalten. Darüber hinaus wurde ein umfassendes Set von Indikatoren entworfen und verwendet, um diese Elemente zu bewerten, was die Reichhaltigkeit und Wissenschaftlichkeit des Indikatordesigns erhöht und einen bedeutenden Beitrag zum Bereich des Landmanagements leistet. Zusätzlich hebt die Analyse der Kommunikationsnetzwerke im Pilotfall von Peking die zentrale Rolle von Gemeindeebenen-Organisationen und die Marginalisierung von Akteuren auf Dorfebene hervor, was die Notwendigkeit inklusiverer Kommunikationsstrategien unterstreicht. Die Forschung in der Provinz Henan identifiziert normative Voreingenommenheit, Herausforderungen bei der Interessensäußerung der Stakeholder und Vertrauenskrisen als wesentliche Hindernisse für effektive kollektive Entscheidungsfindung und schlägt Vertrauensbildungsstrategien als Schlüssel zur Überwindung der Dilemmata kollektiver Aktion vor. Die empirische Studie in der Provinz Jiangsu zeigt, dass soziales Kapital effektiv Vertrauen unter den Beteiligten fördert, was wiederum die Kooperationsleistung erheblich beeinflusst.

Diese Arbeit leistet bedeutende Beiträge in theoretischer, methodologischer, empirischer und disziplinärer Hinsicht im Bereich des Landmanagements und der Politikgestaltung. Theoretisch rekontextualisiert sie Elinor Ostroms Theorie der kollektiven Aktion, indem sie Vertrauen und Risiko in die Logik freiwilliger kollektiver Aktion einbezieht. Methodisch kombiniert sie qualitative und quantitative Ansätze, einschließlich fortschrittlicher Techniken wie SNA und SEM, um die Beziehungen zwischen den Elementen, die kollektive Aktionen beeinflussen, durch innovative

Indikatoren und Fallstudien zu messen. Empirisch führt sie umfangreiche Feldforschungen in verschiedenen chinesischen Kontexten durch, die Einblicke zur Verbesserung der Politik bezüglich der ländlichen Landentwicklung (RLD) bieten. Disziplinär überschneidet sich die Arbeit mit mehreren Feldern und erweitert so ihre Auswirkungen und Anwendbarkeit im Verständnis und in der Beeinflussung globaler Landmanagementpraktiken.

Diese Arbeit markiert einen entscheidenden Wandel von traditionellen, top-down Landmanagementpraktiken zu inklusiveren und partizipativeren Ansätzen, insbesondere unter Anpassung an die Herausforderungen der sich entwickelnden ländlichen Landmanagementpraxis in China. Sie betont die Bedeutung des Verständnisses der Rollen, Beziehungen und Vertrauensdynamiken zwischen verschiedenen Beteiligten und hebt freiwillige kollektive Aktionen als entscheidend für die Abstimmung der Anreize der Beteiligten und die Gewährleistung gerechter, effektiver Landmanagementergebnisse hervor. Diese Forschung trägt nicht nur zur Reform der Landpolitik und der Theorie der kollektiven Aktion bei, sondern bietet auch praktische Einblicke für politische Entscheidungsträger und Beteiligte, indem sie die Komplexität der Landmarktisierung anspricht und nachhaltige ländliche Entwicklung fördert. Zusammenfassend ist diese Arbeit ein wichtiger Fürsprecher für den Übergang zu einem inklusiveren, gemeinschaftlich getriebenen Modell in den Landmanagementpraktiken.

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方
回望
夜未央
壮志向阳
学海无垠广
悠悠征途绵长
历历情境吐芬芳
感念良师益友矫枉
卓越工大沐春风骀荡
远眺峰峦心里碧波荡漾
寒窗满师青春无散场
大浪淘沙气宇轩昂
愿执子之手无恙
沐风雨诉衷肠
白首风月盎
陈如佳酿
每怀享
醇香
漾

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CHAPTER

1

Chapter 1. Introduction

1.1 Problem Statement

Collective action has long been a pivotal subject within numerous fields, including economics (Banerjee et al., 2019; Fehr and Schurtenberger, 2018; Jr, 1971; Ostrom, 1990a), environmental science (Hardin, 1968a; Holling, 1973; Jiang et al., 2023; Lirman and Schopmeyer, 2016), sociology (Baldassarri and Diani, 2007; Lin, 2002; Paxton, 2002; Putnam, 2000a; Smith and Moody, 2013), and political science (Knoke, 2019; Osborne et al., 2019; Schraff, 2021; Smith and Moody, 2013), especially as it pertains to natural resource management (Grimble, 1998; Humphreys, 2005; Libby, 1994). Globally, managing shared resources or 'commons' presents a persistent governance challenge, necessitating a balance between individual benefits and collective well-being (Ostrom, 1990b). The management of land as a form of commons, fraught with tension due to the inherent conflict between personal and collective interests, is a prime example (Danson and Burnett, 2021). These disputes, far from being merely theoretical concerns, have tangible impacts on the efficacy of collective action and the principles for effective management of shared resources, particularly in the context of land policy where mismanagement has high stakes, leading to significant social and environmental consequences.

Chinese rural land management has traditionally been characterized by collective ownership. However, ambiguously defined land rights, entangled in communal relationships and traditional governance structures, have often led to challenges including inefficiency, inequality, and informal practices (Lai, 1995; Lu et al., 2020;

Xue et al., 2021). The central government's efforts to stimulate rural development and increase agricultural productivity have frequently clashed with these local realities.

The emergence of market-oriented reforms introduced a new paradigm, where collectively-owned operating construction land (COCL) could be marketized, creating an opportunity for rural communities to engage directly with the market economy (Jiao and Xu, 2022; Yan et al., 2021a). This shift has necessitated a rethinking of collective action—how stakeholders within these rural communities, including landowners, villagers, and local authorities, collaborate, negotiate, and make decisions about land management and development. Therefore, the research delves into a rural land development policy introduced by the Chinese government in 2015, targeting the marketization of COCL. This policy move intends to broaden access to the rural land market and initiate reforms to handle land use matters in a way that promotes a more active land transaction market. Multiple pilot studies of this policy present a typical dispute between individual and collective interests, offering a unique Chinese perspective on global collective action research concerning commons.

The marketization of COCL in China has spurred a considerable body of scholarly research, focusing on key aspects such as identifying entities responsible for bringing land to market, categorizing tradable land resources, formulating profit-sharing models, and delineating trading methodologies. Studies have recognized diverse market entry subjects and trading types permissible under government mandates (L. Zhou et al., 2020a; M. Zhang et al., 2021). However, contentious issues around profit-sharing and trade methods have underscored challenges in accurately valuing land and

dissatisfaction with existing cost accounting mechanisms (Huang, 2018; So, 2007). Comparative analyses of different market entry routes and modes across cases underline the multifaceted nature of COCL marketization. Despite this extensive macro policy research, a critical gap remains in understanding micro-level barriers to market entry, and the literature often lacks a robust theoretical framework to explore the nuanced interactions among various stakeholders involved in COCL marketization. This gap points to the need for a more holistic approach that integrates theory with empirical data to unravel the complexities of the marketization process.

Bridging the divide between marketization complexities and stakeholder dynamics, the concept of collective action in COCL marketization presents its own set of challenges and societal dilemmas (Adelaja and George, 2019; Sun et al., 2021a). Stakeholders, from villagers to the government, have divergent goals, from maximizing profits to achieving broader objectives like public service and environmental protection. These conflicting interests lead to challenges such as illegal land use and exclusion of disadvantaged groups (Lian et al., 2019a; Zhou and de Vries, 2022a). Proposed solutions like formalizing land property rights, while significant, do not completely address the intricacies and variances inherent in property rights theory (Kalabamu, 2019; Thakur et al., 2020). Informal agreements and perceptions of tenure security can be proved more influential and effective in some contexts (Honig, 2022; Ostrom, 2009a; Platteau, 2015; Rao et al., 2020a; Tian and Lin, 2016). Furthermore, the effectiveness of government and institutional roles heavily depends on their credibility and capacity to foster trust and cooperation, yet existing studies often fall short in dissecting the

complex interplay of these elements (Farrell and Knight, 2003; Hui and Bao, 2013). This research gap highlights the need for a more comprehensive theoretical and empirical analysis that not only addresses the external manifestations of these dilemmas but also delves into the underlying logic and interconnections among various participants in COCL marketization.

This research aims to fill these gaps by applying collective action theory to COCL marketization, focusing on trust and cooperation among stakeholders. The goal is to explore the mechanisms behind barriers to market entry and to propose targeted strategies for overcoming these challenges. The research tries to explore the transition from conventional, top-down land management practices to more inclusive and participatory approaches that encompass voluntary collective action. This shift is particularly pertinent in the context of China's rural land development, where rapid urbanization, policy reform, and socio-economic changes have prompted a re-evaluation of land use and ownership models. Central to this research is the concept of voluntary collective action, which is posited as a critical mechanism for harnessing local knowledge, aligning stakeholder incentives, creating more equitable and effective land management outcomes, and realizing the potential benefits of land marketization while managing the inherent risks and challenges. This study sets the stage for a deeper inquiry into the dynamics of collective action in rural land development, focusing on the interplay between social, economic, and political forces that shape land management practices in China's rural areas. It aims to contribute to the body of knowledge on land policy reform, collective action theory, and rural development

strategies, with the ultimate goal of informing policy-making both within China and in other contexts facing similar challenges.

1.2 Research Objectives and Questions

The overarching objective of this thesis is to elaborate on how stakeholders collectively treat and manage the land in land management practice through conceptual and theoretical review, methodological construction, and empirical evidence, and try to promote, propose, and describe the collective action dynamics in commons governance for international policy makers to create more effective policies to avoid inequality and informality, with a global perspective and a specific focus on empirical analysis in China.

Research objective 1: to identify which conceptual and theoretical model would be most appropriate to evaluate the market-oriented behavior of stakeholders in collectively owned land tenure.

- Research questions:
 - RQ1. Why is it important to focus on collective action in the market-oriented process of collectively owned land tenure?
 - RQ 2. What elements could be significant to facilitate collective action?
 - RQ 3. How to build relationships between the elements in the marketization process?

Research objective 2: to design and implement indicators that provide methodological guidance for future empirical analysis in collective action to support land management practices.

- Research questions:
 - RQ4. Which indicators can be developed within the theoretical framework to measure and explain the elements affecting the dynamics of collective action on commons?
 - RQ5. How can these indicators be applied across different insights internationally to ensure their scientific effectiveness and relevance, especially in the context of developing countries?

Research objective 3: to conduct empirical analysis and validate the theoretical framework through case studies in China, focusing on interest disputes and facilitating voluntary collective action for sustainable, effective, and responsible land development.

- Research questions:
 - RQ6. How can confirmatory exploration be used to identify and understand the presence and roles of actors within social relationship networks in the context of collectively owned land management in China?
 - RQ7. What are the formation patterns, characteristics, and underlying reasons of stakeholder relationship networks, and how do these networks influence cooperation dilemmas among stakeholders?
 - RQ8. How does the construction, application, and validation of the theoretical framework in these specific contexts contribute to addressing the collective action dilemmas and enhancing collectively owned land development practices in China and globally?

1.3 Theory and Concept

1.3.1 Theory

In the context of rural land development, some theories provide insights into the dynamics of stakeholder interactions and decision-making processes. Each of these theories offers a lens to examine the complex interplay of economic, social, and institutional factors in rural land development. They provide a theoretical foundation to analyze stakeholder behaviors, decision-making processes, and the effectiveness of different development strategies, contributing to more informed and sustainable approaches in managing rural land resources.

Social Exchange Theory

This theory suggests that social interactions are transactions where individuals aim to maximize benefits while minimizing costs. In rural land development (Homans, 1958a), it can be applied to understand the dynamics between stakeholders such as farmers, local authorities, and developers. Each party in this exchange evaluates the potential benefits and costs of their actions, whether they are economic, social, or environmental in nature. The theory helps explain why and how stakeholders choose to cooperate, compete, or negotiate based on perceived benefits and the relational dynamics involved.

Transaction Cost Theory

Williamson's theory focuses on the costs associated with making economic exchanges (Williamson, 1985a). These costs include searching for information, negotiating contracts, and enforcing property rights. In rural land development, this

theory is instrumental in understanding the factors that influence the efficiency of land development projects. It sheds light on why certain projects may be more efficient or preferred over others and the pivotal role of institutions and governance structures in minimizing transaction costs. It also explains the role of institutions and governance structures in reducing transaction costs, thereby facilitating smoother land development processes.

Trust Theory

Blau's contributions emphasize the role of trust in interpersonal and organizational relationships (Blau, 2017). Trust is seen as a mechanism to reduce the complexity of interpersonal interactions and to facilitate cooperation under uncertainty. In rural land development, trust between stakeholders (e.g., between farmers and developers, or local communities and government bodies) is crucial. Trust reduces the perceived risks of cooperation, encourages information sharing, and enhances the willingness to engage in joint ventures. This theory highlights the need for building and maintaining trust to ensure successful collaborative efforts in land development projects.

Second-Generation Collective Action Theory

Second-Generation Collective Action Theory builds upon the traditional collective action framework by incorporating a broader range of influencing factors, such as norms, social networks, and institutional settings (Ostrom, 1990a). Elinor Ostrom, known for her work on collective action and commons governance, proposed the second-generation collective action theory. This theory offers a more nuanced view of how individuals can cooperate to manage common resources effectively. In the context

of rural land development, this theory helps to understand how collective actions are influenced not just by immediate economic incentives but also by social norms, historical patterns of land use, and existing institutional arrangements. It explains how local communities can effectively manage their resources through collective efforts and how external interventions can support or hinder these processes.

1.3.2 Concept

The concepts of voluntary collective action, social capital, trust, and cooperation performance are critical in understanding the dynamics of natural resource management, particularly in rural land development (RLD). These concepts contribute to a balanced approach to managing land resources, particularly in rural areas where individual actions have communal repercussions. They are foundational to addressing collective action dilemmas that arise from aligning individual preferences within community-led initiatives, especially within the context of China's hierarchical administrative influence, which can disrupt sustainable collective goals and lead to social imbalances.

Voluntary Collective Action

In rural land development, voluntary collective action is a community-centric approach where stakeholders collaborate voluntarily to manage and develop land resources. Unlike top-down mandates, it is characterized by a grassroots level of engagement where local knowledge, traditions, and practices are harnessed to govern land use sustainably. It produces self-organized efforts by individuals or groups to manage resources sustainably without being mandated by external authorities. In the context of RLD, it represents the process by which landowners harmonize their actions

to build cooperation grounded in trust, aiming to reconcile individual and collective interests to achieve sustainable land management.

Social Capital:

Social capital embodies the network of relationships among individuals that facilitate action and resources flow. It consists of structural, cognitive, and relational dimensions, including social networks, shared institutions, and norms, as well as trustworthiness among actors. In RLD, it's the infrastructure upon which collective action is built, providing the channels through which cooperation can be negotiated and enacted. It manifests in various forms:

- **Structural Social Capital:** The networks and connections within a community that enable individuals to act collectively. For instance, in rural China, these networks might be based on family ties, community organizations, or cooperative associations that manage shared agricultural land.
- **Cognitive Social Capital:** Shared norms, values, and understandings that enable cooperation. In land development, this might involve common agreements on land use practices or shared visions for community development.
- **Relational Social Capital:** Personal relationships among individuals within networks, characterized by trust, reciprocity, and mutual aid. These relationships are crucial for mobilizing community action and for the informal resolution of disputes.

Trust:

Trust is central to the functioning of collective action in land development. It

reduces the need for costly monitoring and enforcement of agreements and enables stakeholders to anticipate cooperative behavior from others. Trust can be built through repeated interactions, successful past collaborations, and the existence of strong social norms. In rural development, trust can significantly lower transaction costs and facilitate the sharing of resources and information. Trust in collective action within rural land development is multi-dimensional and includes:

- **Cognition-Based Trust:** Formed through rational evaluation and knowledge about partners' reliability and competence. In rural settings, this type of trust develops as stakeholders gain confidence in the abilities and intentions of those managing the land, often through evidence of past successful collaborations.
- **Emotion-Based Trust:** Arises from personal connections and shared experiences that create emotional bonds. In rural communities, this might develop from long-standing relationships between landowners, community members, and local authorities that transcend transactional interactions.
- **Institution-Based Trust:** Relies on formal structures such as policies, laws, and regulations. In the context of land development, this trust is grounded in the belief that the institutional framework will uphold fair and equitable management of land resources.

These types of trust interact to form a robust foundation for collective action, where stakeholders feel secure in their shared ventures.

Cooperation Performance:

Cooperation performance in the context of rural land development through

voluntary collective action represents a multifaceted evaluation of outcomes, encompassing economic performance, social impacts, and a critical assessment of potential risks. This concept involves measuring the tangible economic benefits, such as efficient allocation of land resources and investment returns, while also considering the subjective social impacts like stakeholder satisfaction, collaborative efficacy, and community engagement. Simultaneously, it addresses the potential risks associated with these collective efforts, including the exposure of confidential information, uncertainties around formal land rights, challenges in effective governance, imbalances in stakeholder power, the phenomenon of free-riding, and adaptability to external changes. The concept of cooperation performance in this context encapsulates not just the tangible economic outcomes and intangible social impacts but also a comprehensive assessment of these risks. This assessment is crucial as it maintains the balance between achieving economic efficiency, fostering stakeholder satisfaction and collaboration, and mitigating risks to ensure the stability, fairness, and long-term viability of collective actions.

1.4 Research Methods

1.4.1 Sampling and data collection

In this comprehensive study, the sampling and data collection are harmonized across three distinct regions—Beijing, Henan, and Jiangsu—to investigate the collective action in COCL marketization in rural China. In Beijing, the Langfa area serves as a pioneering pilot site for marketization, providing a rich context for exploring administrative strategies and stakeholder interactions with the focus is on the communicative frequency and actor roles. For Henan, Dingluan Town in

Changyuan County is chosen due to its developed trade logistics and medical device industry, high land demand, and significant number of COCL parcels. The sampling aims to comprehend the practical workings of collective action, with an emphasis on democratic processes and stakeholder views during the market entry stages. In Jiangsu, the study expands to include a broader sample of 350 farming households across several cities, using a random sampling method to ensure a wide representation. This approach offers a deep dive into the collective action mechanisms at play within a demographically diverse sample.

The sampling strategy integrates purposive and snowball techniques to create a robust network of participants. Starting with key stakeholders identified for their influential roles in land marketization, the approach extends through their professional networks, leveraging the snowball method to encompass a broad spectrum of actors. This ensures the inclusion of diverse perspectives, ranging from government officials and landowners to villagers and media representatives.

The data collection is designed to capture both qualitative and quantitative data. Qualitative insights are gleaned from open-ended interview questions, while quantitative data are obtained through structured surveys using Likert scales. These methods are complemented by the analysis of policy documents, legal frameworks, and media reports to ensure a holistic understanding of each case study. Semi-structured interviews provide in-depth qualitative insights into stakeholder roles, communication patterns, and the intricacies of the marketization process. They are conducted with a range of stakeholders identified through the sampling process, offering a granular look at individual experiences and perceptions. The use of questionnaires adds a quantitative dimension to the study, allowing for the measurement of variables such as social capital, trust, and cooperation performance

across a larger sample of the population. These questionnaires employ Likert scales to quantify attitudes and opinions, facilitating statistical analysis of the relationships between key variables.

Ethical considerations are paramount throughout the research process. Informed consent is obtained from all participants, and confidentiality is maintained to ensure the integrity of the data and the privacy of the individuals involved. The data collection is adaptive, allowing for responsive changes to the instruments and approach based on preliminary findings and stakeholder feedback. This robust and diversified approach to sampling and data collection sets the stage for an in-depth exploration of collective action in the context of rural land development, offering a valuable perspective across different geographical and administrative settings.

1.4.2 Methods selection

Literature Review. The study commences with an in-depth literature review to establish a conceptual and theoretical understanding of collective action in the context of land management and development. This narrative review approach allows for a comprehensive synthesis of existing concepts and theories, identifying the critical elements that facilitate or hinder collective action among stakeholders. It serves to ground the study within the existing academic discourse and sets the stage for the development of new insights into the market-oriented behaviors influencing collectively owned land tenure.

Indicator Development. Following the literature review, the study advances into the design of specific indicators. This phase is guided by de Vaus's three-step process of research design, setting of keywords, and selection criteria, aimed at constructing

robust indicators that will provide empirical leverage for analyzing collective action for effective land policy reform. These indicators are meticulously developed to capture the complex dynamics at play and are validated using Kendall's coefficient, ensuring their applicability and relevance to the research objectives.

Social Network Analysis. The research then employs social network analysis to elucidate the roles and interconnections of actors within the communication networks of land management and development. This analytical approach involves examining measures of centrality, exploring structural holes, detecting cohesive subgroups, and analyzing brokerage within the networks. Through this analysis, the study seeks to uncover the underlying patterns and characteristics of stakeholder relationships that influence collective action in land management practice.

Empirical Analysis. In the empirical analysis phase, the research utilizes higher-order structural equation modeling (HSEM) to rigorously test and refine the theoretical framework developed. This sophisticated statistical technique is particularly adept at modeling complex relationships between observed and latent variables. In this study, HSEM is used to analyze the factors that contribute to effective voluntary collective action in situations where land ownership rights are unclear. By applying HSEM to case studies in China, the research aims to empirically validate the theoretical constructs and provide a nuanced understanding of how to foster voluntary collective action that supports sustainable, effective, and responsible land development.

1.5 Structure of Thesis

The urbanization endeavors in China have placed significant emphasis on rural

land reform, specifically the marketization of collectively owned operating construction land (COCL). By means of this revolutionary strategy, COCL is capable of engaging in the land transaction market while simultaneously maintaining its collectively owned land tenure. This thesis seeks to critically explore the intricacies of stakeholders' collective actions concerning land management practices, drawing insights from different pilot cases in China. Through a meticulous blend of conceptual and theoretical reviews, methodological construction, empirical evidence, exploratory analysis, and synthetic research design, this thesis illuminates the path for creating equivalent, effective, and responsible policies, addressing prevailing issues of inequality and informality. As illustrated in Figure 1, the research is summarized as a cumulative set of five peer-reviewed publications, both forthcoming and published.

Chapter 1 presents the research background, objectives, and questions, setting the stage for a progressive and in-depth exploration of collective action in land management practices. It also introduces key concepts and theories, outlines the research methods, and previews the thesis structure, providing a roadmap for the investigation ahead. This segment orients the thesis towards its goal: to inform international policy makers through a conceptual review, methodological innovation, and empirical evidence from China.

Chapter 2 (Paper I), aligned with the first research objective, scrutinizes the conceptual and theoretical models that best evaluate the market-oriented behavior of stakeholders in collectively owned land tenure, emphasizing the critical role of trust in navigating collective action dilemmas and suggesting a shift away from a narrow focus

on land property rights to fostering trust relationships among stakeholders. It presents a detailed literature review, research design, and theoretical and conceptual framework, examining three significant elements — social capital, trust, and cooperation performance — that facilitate collective action, and the methods to build relationships between these elements in the context of land reform.

Chapter 3 (Paper II) focuses on the construction and validation of indicators critical for evaluating collective action, tackling the second research objective. It details the research design and process for developing indicators, clarifying a comprehensive set of indicators to evaluate social capital, trust, and cooperation performance in land reform. The validation of these indicators, through expert analysis, underscores their reliability and scientific robustness.

Chapters 4, 5, and 6 collectively respond to the third research objective. They encompass an extensive empirical analysis through case studies in different regions of China, each contributing unique insights into the collective action at play in land management. **Chapter 4 (Paper III)** employs social network analysis to investigate the roles and communication networks of stakeholders in COCL marketization. This analysis reveals the central role played by township-level governments and land joint management companies, while also highlighting the peripheral position of village-level property owners. This imbalance in the communicative process points to a need for more inclusive approaches that give adequate voice to all stakeholders, especially those at the grassroots level. The focus of **Chapter 5 (Paper IV)** shifts to a specific case study in Dingluan Town, Henan Province, assessing how different elements of social

capital affect collective action in the marketization process. Through semi-structured interviews and social network analysis, the study uncovers normative misunderstandings, communicative barriers, and trust issues that impede effective collective decision-making. This paper is instrumental in identifying trust-building strategies as key to overcoming these collective action dilemmas in environmental management. **Chapter 6 (Paper V)** revises Ostrom's framework of collective action, emphasizing the distinction between voluntary and enforced actions of stakeholders. Applying higher-order structural equation modeling (HSEM) to household data from Jiangsu Province, this study illustrates how social capital fosters trust, which in turn drives cooperation performance, test the theoretical hypotheses, and demonstrate the application and utility of the revised theoretical framework in addressing the dilemmas of collective action and enhancing land development practices. This nuanced analysis underlines the effectiveness of voluntary collective action in achieving sustainable land development goals.

Chapter 7 reflects on the thesis's findings in relation to the initial research objectives and questions. It offers a critical assessment of the contributions and the limitations, suggesting a synthesized view of the potential for policy interventions and the practical implications of the research findings on the collective action of commons and land development practices.

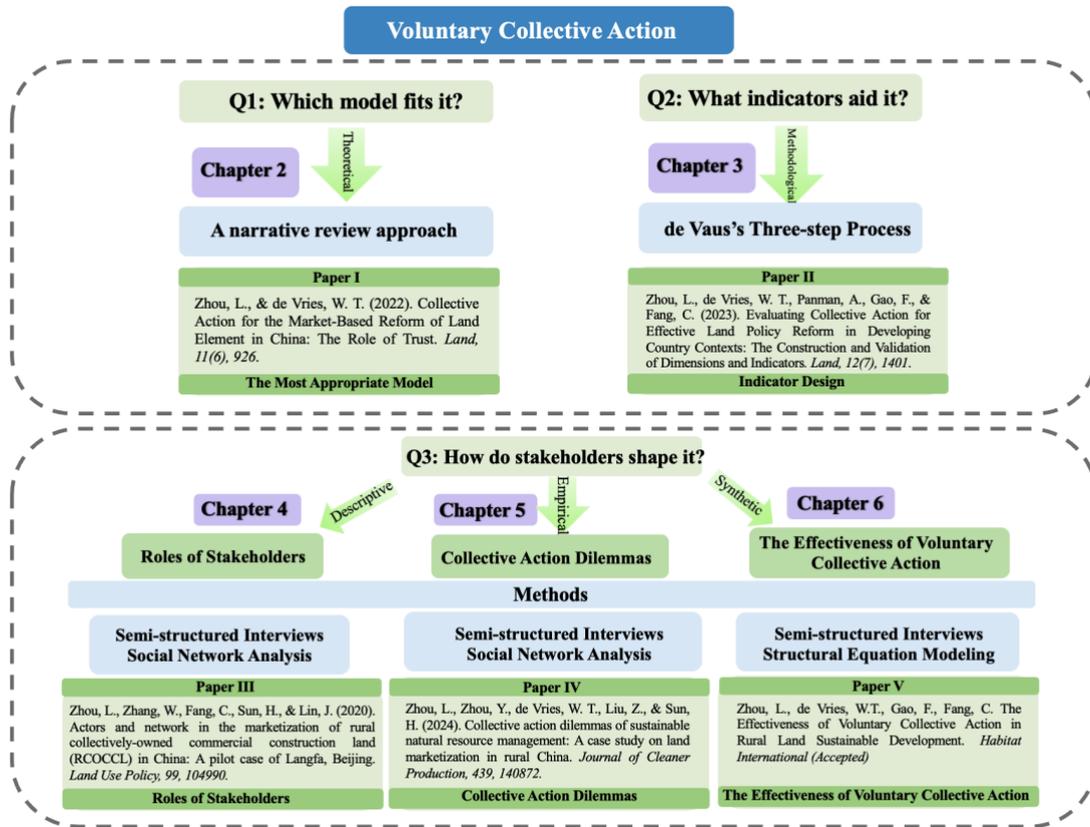


Figure 1. Overview of thesis structure.

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CHAPTER

2

Chapter 2. Collective Action for the Market-Based Reform of Land Element in China: The Role of Trust*

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Abstract

The market entry of collectively-owned operating construction land (COCL) is an important policy of the Chinese government to promote the flow of rural land elements in the market. Describing, characterizing, and understanding collective action for COCL marketization in China is conducive to identifying potential contradictions in a timely manner, constructing common goals, and promoting stakeholder cooperation to improve the efficiency of land marketization. Our research question is to identify which conceptual and theoretical models would be most appropriate to evaluate the market-based land reform in China. Relying on a narrative review approach, we interpret the literature and infer that trust is conducive to cracking the collective action puzzle of COCL marketization and propose a conceptual or theoretical framework for the joint analysis of social capital, trust, and cooperation performance for modeling and investigating the important role of trust in collective action. Concentrating on the role of social rationality in land marketization, we suggest a pathway to break away from the collective action dilemma focusing on land property rights to building stakeholder

trust relationships. Subsequent research could continue by developing indicators to measure social capital, trust and cooperation performance and empirically investigate the relationship between them on this basis.

Keywords

Collective action; land marketization; collectively owned land; trust; theoretical framework

Chapter 2. Collective Action for the Market-Based Reform of Land Element in China: The Role of Trust

2.1 Introduction

Sustainable development has long been an important global issue. In 2015, the United Nations launched the 2030 Agenda for Sustainable Development, with 17 global sustainable development goals (SDGs). Land use and distribution has an impact on the environment, making the topic of effective land use management in the light of sustainability particularly important. In China, the government has enacted many land policies to improve farmers' lives but has often encountered obstacles in promoting the implementation of the new land policy. With regard to the formulation and implementation of land policies, villagers are almost exclusively concerned with how much they can gain, and therefore rarely express their true views on existing land policies, although many policies and literature mention that the implementation of land policies should respect the wishes of villagers and advocate public participation.

At the same time, one can observe a decline in China's economic growth rate. There is a smaller labor force, and an increasing reliance on the surplus rural labor, which leads to lower savings rate and an ageing population in the rural regions (Jiang et al., 2022; Wu, 2021; Zhao et al., 2021). To this end, the government applies approach to shift the economic development from factor input driven to productivity driven (Li et al., 2020). In addition, it promotes innovation, through stimulating market-oriented reallocation of production factors. Among the main factors of production, collective land is generally not allowed to be traded in the land market due to strict government control, and can only be traded in the land market after land expropriation, which changes collective land ownership to state-owned land ownership (L. Zhou et al., 2020b). This land acquisition policy has facilitated the development of urbanization

and industrialization, but it has also resulted in the de-agriculturalization of agricultural land, excessive expansion of urban scale(Jacoby et al., 2002; Sargeson, 2013a), a wide gap between urban and rural development, and damage to the interests of landless farmers(Kan, 2019; Qun et al., 2015). In particular, as a large number of farmers have moved to the cities, the shortage of land in urban areas has led to soaring real estate prices, while the phenomenon of idle and abandoned land in rural areas has become increasingly serious(Y. Zhou et al., 2020a).

China's underdeveloped rural land market is unable to foster an effective mechanism of supply and demand. This has prompted the Chinese government to open up the rural land market and carry out market-oriented reforms of land factors by proposing a series of policies and regulations (Andreas and Zhan, 2016; Fang and Pigneur, 2010). In 2013, the establishment of a unified urban-rural construction land market was proposed, allowing collectively-owned operating construction land (COCL) to enter the land transaction market, subject to planning and use control. In 2015, 33 administrative regions were selected as pilot sites for the COCL marketization reform. In 2017, the report of the 19th Party Congress proposed that the reform of the economic system had to improve the property rights system and the market-oriented allocation. On 1 January 2020, the Land Management Law broke down the legal barriers to COCL marketization. In April 2020, the Opinions of the CPC Central Committee and the State Council on Improving the Systems and Mechanisms for Market-based Allocation of Factors of Production', the first document of the Central Government on market-based allocation of factors, gives specific guidance on market-based allocation of factors such as land, capital, labor, technology and data. In 2021, the Action Plan for Building a High Standard Market System gives prominence to the promotion of market-based allocation of land factors. The market entry of collectively-owned operating

construction land (COCL) is an initiative which aims at establishing a unified construction land market for urban and rural areas¹. According to statistics released at the seventh meeting of the Standing Committee of the 13th National People's Congress on 23 December 2018, as of today, in China's 33 pilot counties (cities and districts), a total of more than 10,000 pieces of COCL have entered the market, covering an area of more than 90,000 mu, with a total price of approximately RMB 25.7 billion and a reconciliation fund of RMB 2.86 billion, while a total of 228 pieces of COCL have been processed for mortgage loans, totaling RMB 3.86 billion. The incomplete and ambiguous property rights prevalent in rural China have led to peculiar land revenue distribution outcomes (Zheng and Cai, 2019). While farmers' perceived land tenure rights are low, due to forced evictions and government intervention, land tenure systems have significant social support and low levels of conflict. The reasons are that institutional credibility and interpersonal trust play an important role in safeguarding perceived land tenure security, allowing collective action to proceed smoothly. The COCL marketisation in China is an important land policy proposed by the government to promote the marketisation of rural land elements and improve the urban-rural dichotomy. Hence, describing, characterizing and understanding collective action for COCL marketization in China is conducive as it can identify potential contradictions in a timely manner, constructing common goals and promoting stakeholder cooperation to improve the efficiency of land marketisation.

The research question of this paper is to identify which conceptual model would be most appropriate to evaluate the market-based land reform of land in China. This study draws on existing literature dealing with the dilemmas, causes and solutions to collective action in COCL marketization, and extends this by constructing a conceptual

¹ the Decision of the CPC Central Committee on Several Major Issues Concerning Comprehensively Deepening the Reform

and theoretical framework for collective action with trust as an intermediate variable. This framework provides the foundation for subsequent empirical analyses of the relationships between social capital, trust and cooperation performance in collective action. The objective of this inferential review is to derive an approach to solve the collective action dilemma of land marketization and to construct and understand the relationship between social capital, trust and cooperation performance. With this it should be possible to measure this relationship, support land marketization, and avoid collective action dilemmas.

The paper is organized as follows. Section 2 reviews the theoretical perspectives on collective action of land marketization in China. Section 3 introduces the research area and data sources. Section 4 synthesizes findings on the identified challenges of collective action to develop a theoretical framework. Section 5 concludes by synthesizing how to address the collective action dilemma of land marketisation in China.

2.2 Collective action of COCL marketization in China

Zhou et al. (2020) argue that in terms of interest patterns, China's current land allocation is generally at the expense of farmers' interests, and the market is not functioning as it should(L. Zhou et al., 2020b). The Chinese government has attempted to implement COCL marketization by establishing a unified urban-rural construction land market and improving the spatial mismatch and underdevelopment of rural land factor markets. Market participants reduce the uncertainty of market formation by setting rules to accomplish activities such as process review, land transactions and revenue distribution. It is difficult for any one individual to have sufficient capacity and resources to carry out these activities, which to varying degrees require collective action. While existing studies address operation issues such as mode choice for market entry

(Rao et al., 2020b), distribution of benefits (Yan et al., 2021b; M. Zhang et al., 2021), allocation efficiency(Wang and Tan, 2020a) in COCL marketisation, few provide a theoretical description and dissection of how, when and where collective action takes place in this context. In light of this(Hardin, 1968b; Olson, 2009a), there is a need to view the process and dynamics of the COCL marketization from the perspective of collective action (Brady and Ostrom, 1993; Marwell and Oliver, 1993a).

2.2.1 Collective action dilemmas in the land marketization

There are three factors that may give rise to collective action based on the General Theory of Conceptual systems (Chavchanidze, 1974): subjects, objects and environment. “Subjects” are individuals or groups involved in collective action, including landowners, land tenure holders and policy implementers who are often referred to as stakeholders in the context of COCL marketization (Wang and Tan, 2020a; H. Zhang et al., 2021; L. Zhou et al., 2020b). “Object” refers to the social activity in which the subject participates, and they can all be triggers for collective action (Acharya et al., 2006). The object of COCL marketization is to the full life cycle, including pre-market entry preparation to determine land conformity and title registration; qualification review for application, review and democratic resolution; public trading; and distribution of proceeds. “Environment” means the behavior and issues that arise from the interaction between subject and object (Liu et al., 2018; van Zomeren, 2015). For COCL marketization, the environment is mutual benefit or conflicting actions of stakeholders throughout the life cycle.

Whilst social collective action for land marketization is important, it is often difficult to achieve(Lee et al., 2018). This is because participants exhibit speculative behavior, operate under bounded rationality, have to deal constantly with uncertainty, and work in information asymmetries. Such conditions tend to generate transaction

costs that hinder or stall collective action. One can specify the collective action dilemma in China's land marketisation and the reasons for it through a number of characteristics.

The first aspect is rent-seeking behavior. In the process of marketizing rural collective land, landowners or stakeholders tend to seek rents above the market price, which in turn leads to a reduction of marketisation of the land as it increases the transaction costs and rent negotiation times. Another manifestation of rent-seeking behavior is that due to government restrictions on land property rights, land owners or stakeholders are unable to change the use of the land to gain additional revenues. As a consequence, they tend to circumvent the law or use the land illegally, thus increasing the workload of government intervention, investigation and problem-solving to achieve a compliant, reasonable and legal market outcome(Lian et al., 2019b).

The second characteristic is the prisoner's dilemma. Since the land tenure entering the market is collective ownership, individual members of the village collective need to negotiate to reach a consensus willingness to cooperate. They tend to make the choices to optimize their individual interests rather than seeking a collective benefit. The dilemma with collective action is that individual members cannot overcome and restrain their selfishness to make the collective best choice for mutual benefit(Ahn and Ostrom, 2002).

The third issue is free-riding. Collective action cannot exclude those who do not contribute from benefiting from its development (Heckathorn, 1996; Olson, 2009a). Individual rationality often has a tendency to free-ride in the achievement of collective goals, and therefore individual rationality is not a sufficient condition for achieving collective rationality(Olson, 2009a). Collectively owned land is characterized by non-adversarial and low exclusivity, and an actor's contribution to collective land has positive spillover effects that increase the overall benefit, with the benefits realized

often spilling over to others. Individuals will not cooperate and thus lead to collective action dilemmas when they have the expectation that others will contribute or when they believe that their non-cooperation will not affect the supply of collective land.

The fourth assumption is low perceived returns(Lee et al., 2018). Perceived returns refer to the impact of their contribution to the entry to the market as perceived by participants. Early contributions to land marketization often do not result in tangible benefits, and therefore participants' perceived returns to their contributions are low. As land markets gradually develop and improve, more contributions accumulate and the process and effects of land marketisation only become apparent. Thus, with uncertainty and low perceived returns, the land marketisation process is often hampered in the early years.

These problems derive from behavior of self-interest of the participants. Self-interested people only pursue their own personal benefits and do not consider the impact of their actions on the collective and society(Lounsbury et al., 2003; Santos and Eisenhardt, 2009). The Land Administration Law of the People's Republic of China (2019 Amendment) provides that COCL that complies with the plan and is legally registered requires the consent of at least two-thirds of the members or village representatives of the collective economic organization if it is to be sold and leased. If a stock of social capital - in the form of shared consciousness, mutual trust and normative agreement - cannot be accumulated among collective members, there are high transaction costs. Those who are self-interested and act in their own interest will likely externalize the costs to others, and the collective action of COCL marketisation generates high transaction costs under government regulation and market mechanisms, to the detriment of the construction of a unified urban-rural construction land market. Social rationality can break through the rational economic man assumption of

mainstream economics and emphasize the pursuit of individual interests along the path of collective maximization. Social rationality is both an idea that promotes 'human growth' (Banfield and Diesing, 1963) and a mode of decision-making that reconciles altruism and self-interest. It is seen as an extension of self-interest rationality (Sager, 1999), allowing participants in land markets to focus not only on their own interests, but also to strengthen their concern for the groups and societies in which they live.

2.2.2 Trust as a factor in solving collective action dilemmas

The execution of collective action depends on adequate information obtained through exchange within the organization. If stakeholders are characterized by rent-seeking behavior, prisoner's dilemma, free-riding and low perceived returns as described above, significant transaction costs will be incurred in the exchange process, thus discouraging collective action (Adhikari and Lovett, 2006; Viswanathan et al., 1999).

Clear property rights to land would seem to provide answers to the above questions both at the theoretical level and in empirical studies. At the theoretical level, the new institutional economics, particularly the property rights school, sees property rights as formal rules governing people's social interactions (Alchian, 1965; North, 1990), which do not only specify who has access to which resources under what conditions (Vatn, 2005), allowing people to trade in a secure environment, but also provide incentives for property owners to weigh the pros and cons and use resources wisely. At a practical level, Ho (2005) notes that the lack of complete and clearly defined formal rules for rural land property rights in contemporary China has hindered the marketisation of land leases (Ho, 2014a). Such insecure property rights leave original property owners without the security of formal institutions (Wang and Tan, 2020a). Additionally, many informal or oral agreements may emerge, i.e. relational transactions based on trusting

relatives and close partners(Ma et al., 2015a; Wang et al., 2015). Luo (2018) notes further that farmers' expectations of stability in land tenure are significantly reduced with trust becoming a key complement to formal institutions in the development of land rental markets (Luo, 2018) and an important safeguard for rural land tenure security(Rao et al., 2020b).

Trust has a certain economic value in that it eliminates excessive contracting and gaming, reduces coordination costs, reduces transaction costs and increases efficiency. It also makes stakeholders willing to share information and promotes collective action and cooperation(Ostrom and Ahn, 2003a). The essence of trust is the act of needing the help of others to accomplish certain events under conditions of incomplete information or limited rationality. It is the mechanism by which social rationality is formed, implying a shift from self-interested rationality to social rationality by abandoning the individual's claim to maximize self-interest. A shift from a focus on land property rights to a focus on trust is essential in order to escape the dilemma of collective action generated by self-interested behavior. Emphasis is placed on the important role of trust in collective action, which is an important factor in villagers' support for the marketisation of collective land. While existing research is beginning to emphasize institutional trustworthiness(Ho, 2014a) and interpersonal trust(Ma et al., 2020a; Rao et al., 2020b), there is still a need to construct a theoretical framework for collective action of land marketisation with a trust perspective.

2.3 Materials and Methods

2.3.1 Research design

This study uses a narrative review approach(Green et al., 2006), which allows for a broad search across different disciplines. The study analyses collective action in land marketisation in China at a theoretical and literature review level and covers four areas

of knowledge: land administration, land sociology, agricultural sociology, and social psychology, and this approach provides a broad perspective on the study and expands its interdisciplinary scope. The data collected are secondary data obtained through literature searches of Science Citation Index database, mainly Web of Science, with "all databases" selected in the list of databases, with the aid of Google Scholar for literature searches.

2.3.2 Setting of keywords and terms

The literature search used the following key words: land marketization, social capital, trust, cooperative performance, collective action, rationality. Terms to the query preview relate to the combined relationship of different keywords, divided into three categories: limited to the two terms "land" and "market". limited to the term "land"; not limited to the term "land". The search terms and combinations used to find relevant literature are listed in Appendix 2.A, and the number of searches for limited to the two terms "land" and "market" is significantly lower than the other two categories.

2.3.3 Selection criteria

In conjunction with the two questions "what are the problems faced in the market-based reform of land element in China" and "what is the thinking for solving the problems of land marketisation" addressed in Section 2, the focus was on constructing a conceptual and theoretical framework on collective action for land marketisation. The research synthesis focuses on a number of logical positions in order to draw out the similarities and differences between these perspectives. With this objective in sight, there is still a need to filter out the valuable literature from the results of Appendix 2.A. Literature was first removed on topics not relevant to this study by using Citavi during the importation of citation text files, such as online learning, intellectual property, corporate governance, renting, self-employment, trust funds, public health, history,

politics, communications, energy, automation, aerospace, vehicles, dynamics, logistics, batteries, human-computer interaction, signals, medicine, health, political economy, real estate economics, social media, business, fisheries, animal husbandry, wildlife management, etc. Secondly, expert-recommended literature has been included to enhance the grasp of the research area. Finally, the titles, keywords, and abstracts of all selected literature were derived and subjected to a final round of screening, followed by a full review of the remaining literature. It is worth noting that the categories of social capital and trust are extracted separately in this process, and access to the concepts of the different categories facilitates an in-depth dissection of the connection of social capital and trust.

2.4 A conceptual and theoretical framework for the collective action of rural land marketization

2.4.1 Three elements of understanding the collective action of land marketization

This study examines the elements of collective action that influence the marketisation of land at three elements - social capital, trust and cooperation performance. Our findings reveal their roles in collective action and how they can facilitate and hinder collective action in the process of land marketisation.

2.4.1.1 Social capital and collective action

Social capital refers to actors' relationships based on mutual trust and reciprocity as a means of reducing market, cognitive and resource uncertainty (Rampersad et al., 2010), generating resource flows (Arregle et al., 2007) and facilitating social organisation to cooperate for social efficiency (Stern and Putnam, 1993a). Social capital is based on network relations and contains three types (Nahapiet and Ghoshal, 1998a;

Tsai and Ghoshal, 1998a): structural, cognitive and relational(Inkpen and Tsang, 2005; Lechner et al., 2010).

(1) Structural dimension of Social Capital: Social network

The structural dimension refers to the social network connections between actors. Social networks are also a form of social capital, which can be seen as a social resource that exists in long-term stable network relationships and is collectively owned by members(Ostrom and Ahn, 2003a). Social capital generates trust and reciprocity between individual actors through close social network interactions, resulting in cooperation in a way that breaks through the completely rational selfishness of individuals. This process becomes an important part of social capital's ability to overcome collective dilemmas. The high degree of closeness of social networks indicates frequent contact between members, which facilitates the rapid flow of information through the network and makes it easier to escape from the selfish decision-making style of members for the purpose of information exchange and collective action. The structural dimension of social capital (Figure 2.1) affects the actor's ability to access information and engage in action and is studied with villagers, with analysis including network position and network structure(Lechner et al., 2010). The actor's position in the network determines whether he can receive information and influences the transmission of information(Paruchuri, 2010); network structure is used to dissect the strength of the small groups in the information transfer process and the connections between them.

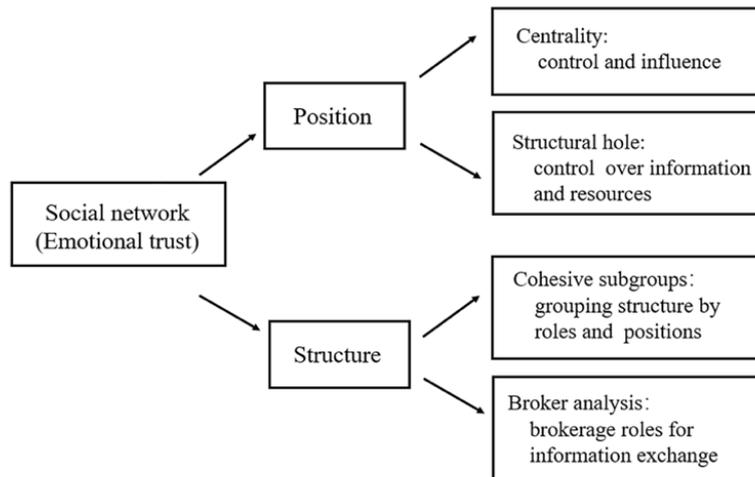


Figure 2.1. Structural dimension of social capital.

(2) Cognitive dimension of Social Capital: Institutions and norms

The cognitive dimension refers to the shared goals and values of actors. Institutions and norms (Figure 2.2) are enforceable regulations used by groups in many forms of organizations and are specific prescriptions for collective action to regulate order and sanction behavior that undermines rules (Ahn and Ostrom, 2002). Effective norms make it easier for people to act in the collective interest by appropriately forgoing self-interest, helping to develop interpersonal trust and a sense of community (Coleman, 1994). Although actors may have different strategic goals, the difference between individual goals and overall goals can be addressed by developing common goals to facilitate the effective functioning of the network. When the number of network actors increases and transaction and communication costs rise, it is easier to maintain collaborative relationships when actors share common strategic goals, values, and culture (Bianchi and Bellini, 1991).

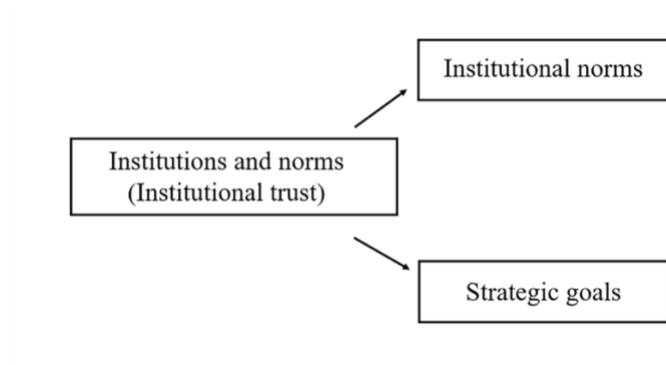


Figure 2.2. Cognitive dimension of social capital.

(3) Relational dimension of Social Capital: Trustworthiness

The relational dimension refers to the trust between actors. Trust is not only one of the forms of social capital, but also a consequence of it, and furthermore an important factor between social capital and successful collective action (Torsvik, 2000a). Trust links social capital to collective action and is a key factor in resolving collective action dilemmas. The trustworthiness that trustees have often derives from the trustor's own ego traits and is an expression of individuality in collective action (Fukuyama, 1996a). Trustworthiness is trust in the intrinsic motivations of others and is the key to trust. Trustworthiness is an important abstraction that precedes trust and can be characterized by reputation, capability, benevolence, integrity (Roger C Mayer et al., 1995). In the initial stages, by virtue of the trustworthiness of the policy implementers, the landowners built up a one-way trust in them, and then move from to two-way reciprocity through close interaction and communication. Finally, landowners and policy implementers successfully overcome the collective action dilemma to culminate in a two-way cooperative relationship of mutual trust and reciprocity (Figure 2.3).

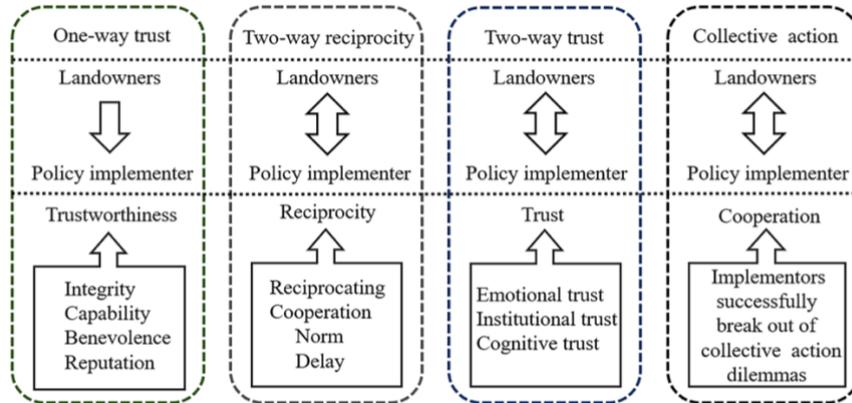


Figure 2.3. Relational dimension of social capital.

2.4.1.2 Trust and collective action

The dilemma of collective action lies in the potential conflict between the individual and collective interests faced by each member of a group with a common basis of interest (Olson, 2009a). If an individual member is not deprived of the right to enjoy the collective good, then he will have strong incentives to avoid taking responsibility for it. The collective action dilemma points to the difficulty and fragility of human cooperation, which manifests itself when there is a conflict between individual and collective interests. The solution to the collective action dilemma requires individual members to overcome selfishness in order to achieve mutual benefits (Ahn and Ostrom, 2002). Trust eliminates excessive contracting and gaming, reduces the monetary and time costs of transactions, and allows for an effective connection between the individual and the collective to get out of the collective action dilemma (Ostrom and Ahn, 2003a). Trust here refers to the likelihood that the trustor is willing to be harmed by the trustee's actions, and this willingness is based on the trustor's prediction that the trustee's actions are important to him or her, regardless of whether the trustor has the ability to control or monitor the trustee, that is, the need for trust arises in risky situations (Roger C Mayer et al., 1995). It can come from the institutional norms of society, from the social identity of the group, or from personal

factors. Drawing on definitions of types of trust from various fields and schools, this thesis divides trust in the context of land marketization into three types: emotion-based, institution-based and cognition-based trust.

(1) Cognition-based trust

Initial expectations of the prospective partner and assessment of trust risk are prerequisites for establishing cognition-based trust. The former includes personal characteristics (e.g. gender, voice, and appearance), cultural background, behavioral motivation, professional competence, and reputation of third parties (Doney et al., 1998); the latter is to predict the benefits and costs of cooperation (Rousseau et al., 1998). The amount of trustworthiness evidence available to the trustor determines whether the trustee is trustworthy or not (McAllister, 1995). The trustor's comprehensive knowledge of the trustee is useful in predicting the behavior of the trustee and making of sound judgments about cooperation (Shapiro et al., 1992). The cognition-based trust of land marketisation is the different attitudes expressed by villagers towards the market-friendly behavior and decisions of policy implementers through their all-round evaluation and assessment.

(2) Emotion-based trust

Emotion-based trust is formed by the emotional attachment that results from the entry of emotional factors into the relationship between the individual and the object of trust during frequent interactions over time (Rousseau et al., 1998). Its main characteristic is that it is possible to develop it only after a long period of interaction. As the interaction grows closer, qualities such as goodwill and integrity come to the fore, the relationship develops steadily, and shared values are established, all of which may facilitate mutual recognition to optimize the effectiveness of the exchange between the two parties (Shapiro et al., 1992). Once an emotional connection is made, the

relationship of trust between them becomes stronger and there is potential for further cooperation. Emotion-based trust in land marketisation is more likely to be trust in relatives who also participate or vote on whether COCL enters the market and trust in villagers from the same or different villages.

(3) Institution-based trust

"Institution-based trust" means that one believes impersonal structures support one's likelihood for success in a given situation (McKnight et al., 1998). It can develop without relying on personal traits or past records, replacing reliance on specific objects and specific exchange processes (Zucker, 1986). Institutional rules and ethical norms in society are the basis for the formation of institution-based trust (Hagen and Choe, 1998), which allows expectations of future cooperation to be based on more objective criteria and the objects of exchange to become more universal (Zucker, 1986). The object of trust has also shifted from individuals or groups to formal institutions (e.g. legal regulations or professional certifications) or informal institutions (e.g. social or corporate culture) (work(s):, 1993). The institution-based trust in land marketisation stems from the low level of conflict perceived by villagers due to their recognition of institutional function of the COCL and the prediction that it will facilitate the equitable and orderly flow of rural land resources in the future.

2.4.1.3 Cooperation performance and collective action

In collective action, individual behavior has externalities for others, in that individual and social optimality are often incompatible. When group rationality contradicts individual rationality, self-interested behavior can prevent cooperation (Olson, 2009a) and the imposition of negative externalities by individuals on other group members often leads to the tragedy of the commons (Hardin, 1968b), resulting in the failure of collective action. Successful collective action therefore

depends on people maximizing their common interests and avoiding maximizing their individual interests. We argue that successful collective action and cooperation to be equivalent concepts (Anderson and Narus, n.d.), but neither is the ultimate goal. We support Bain's reference in industrial organization to cooperation (or successful collective action) as a conduct theory (Bain, 1968) and believe that cooperation performance is the outcome, as it provides a criterion for judging the quality of collective action. Cooperation between actors enables collective action to achieve cooperative goals, and a good cooperative relationship brings performance to the actors. Cooperation performance takes two main forms: economic performance and social performance. Economic performance is measured quantitatively in terms of the efficiency of land resource allocation and investment, which is achieved through improved market mechanisms. Social performance is a subjective perception measure of cooperative performance and consists of three components (Anderson and Narus, n.d.). The first is sustaining satisfaction in working partnerships, which refers to villagers' satisfaction with land productivity, profitability and the overall performance of policy implementers. The second is coordinating efforts in working partnerships, which refers to the extent to which predetermined goals, milestones, and final goals are achieved. Finally, dependence and working partnerships refers to the level of loyalty of partners and willingness to continue to participate in other partnerships.

2.4.2 The connection of social capital and trust

Trust and social capital belong to a two-sided relationship. Trust is the external expression of social capital, and social capital provides trust with the influencing factors for social order and collective action. As shown in Table 2.1, the three dimensions of trustworthiness, social network, institutions and norms in social capital have become inseparable from the three types of trust.

Table 2.1. Correlation table between social capital and trust.

Three dimensions of Social capital	Three types of Trust
<p>Trustworthine ss</p> <p>To assess the trustworthiness of the trustee's commitment or behavior by combining objective and subjective information such as past deeds, experience, knowledge, trustee's personal qualities</p>	<p>Cognition-based trust</p> <p>The willingness to trust the other party through the perception of trustee and the measurement of risk assessment.</p>
<p>Social network</p> <p>Social capital as a social resource is embedded in a long-term stable social network relationship. Dense social networks provide the impetus for transformation between different social capitals, allowing actor to cooperate with each other for mutual benefit.</p>	<p>Emotion-based trust</p> <p>A relationship of mutual trust and dependence is achieved through frequent interaction over time.</p>

	Effective social institutions or norms limit actors' individual interests and behaviors that are detrimental to collective action, trust and develop relationships of trust and a sense of community	The institutional regulations and moral codes in society give actors a certain level of security.
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2.4.3 Connecting trust to the identified challenges to develop a theoretical framework

The overall theoretical framework is based on the framework of second-generation theories of collective action proposed by Ostrom and Ahn (2003) (Ostrom and Ahn, 2003a) shown in Figure 2.4. Ostrom and Ahn (2003) (Ostrom and Ahn, 2003a) identify trustworthiness, networks, and institutions as three basic forms of social capital and incorporate them into a theoretical framework of collective action, proposing Second- Generation theories of collective action (Figure 2.4). It views social capital as existing in the form of intangible resources in the social relationships between people, which draw on beliefs such as trust, norms, and participation to accomplish the goals of that social relationship jointly. Social capital refers to the elements within social organisations that enable cooperation to enhance social efficiency, such as trust, norms and networks, and the coordination of which is facilitated by all three to enhance social efficiency.

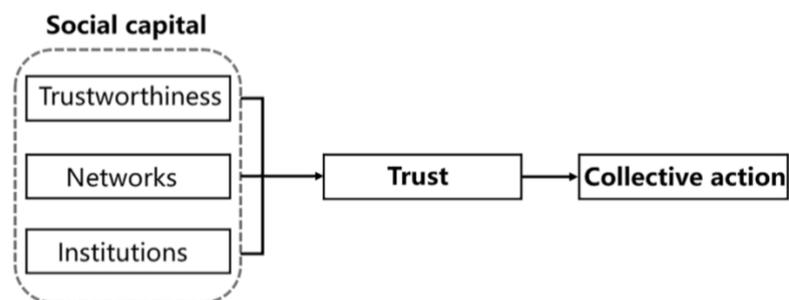


Figure 2.4. The framework of second- generation theories of collective action. (Source: Ostrom and Ahn, 2003(Ostrom and Ahn, 2003a))

Current research has relevant theoretical tenets about social capital, trust, reciprocity, collective action, and collaborative performance, but none of it adequately captures the relationship between social capital, trust, and collaborative performance. The overall theoretical framework of this thesis combines types of social capital and trust theory to reconstruct the theoretical framework of second-generation collective action and focuses on the behavioral outcomes of villagers through cooperation performance, as shown in Figure 2.5. The trustworthiness of policy implementers, social networks, institutions, and norms together constitute the types of social capital, representing the relational, structural and cognitive dimensions of social capital respectively, which influence villagers' perception of social capital and choices of land marketization behavior. Trustworthiness of policy implementers, close social networks, and proper perceptions of institutions and norms will result in villagers' land marketization strategies, in particular, whether or not to opt for trust. Good trust relationships motivate villagers as landowners to cooperate with policy implementers and land tenure holders in land transactions, and cooperative performance is a criterion for evaluating the outcomes of villagers' land-marketing behavior.

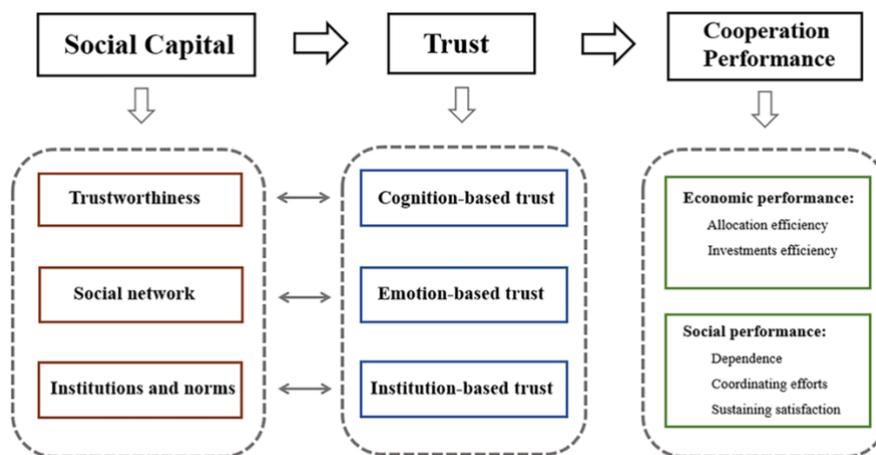


Figure 2.5. The overall conceptual or theoretical framework for the joint analysis of social capital, trust and cooperation performance.

2.5 Discussions

COCL marketization is a new attempt by the Chinese government to promote market-determined prices, self-help and orderly flows, efficient and equitable allocation of land factors, and a unified urban-rural construction land market on collectively owned rural land. The marketization narratives are such that there is a mismatch between the marketization goals and the marketization behavior. Part of this behavior derives from a disconnect between policy goals and collective action. This mismatch can be overcome by conceptualizing collective action in a different manner, which is specifically geared to relations of trust in a market situation.

This study on the concept and framework model addresses a critical gap in four subject areas: land administration, land sociology, agricultural sociology, social psychology. In relation to land administration, it reveals the relationship between land and society, land systems and human behavior from the perspective of trust, redirecting policy thinking and interventions to address collective action in land policy. This study would also contribute to land sociology and agricultural sociology, which conceptualizes social capital and acts on trust to reveal the impact of collective action in the land policy. Also, it focuses on how trust affects cooperative performance and recognizes the important role of trust in the implementation of land policy, which enriches social psychology. The study also contributes to scientific debates on social capital, trust and cooperation performance. This joint analysis provides a full picture of the potential linkages and a new knowledge in the literature of land management and land marketization.

Subjective measures of social capital, trust and cooperation performance may, to some extent, influence the effectiveness of this framework in evaluating the market-based land reform of land in China. Firstly, social capital is multifaceted and multi-disciplinary and has not yet been defined in a uniform way, with the common denominator being that it exists in the form of intangible resources in social relationships. Secondly, trust is an evolving concept, with different connotations and types in different eras, and recent scholarly definitions of trust have shifted from a focus on intentions and motivations to a focus on behavior (Shockley-Zalabak P. et al., 2000). Finally, there are also many aspects of collaborative performance, the evaluation of which can be trapped in choosing the most efficient or the most optimal.

We examine collective action in land marketisation and find that social rationality plays an important but neglected role in land marketisation and that the pursuit of maximizing individual interests along the path of maximizing collective interests should be promoted in collective action. Enhancing trust can be a way to build social rationality within collective action to facilitate better government regulation of economic activity. In addition, we find that the shift from focusing on the security of land property rights to building a relationship of trust between villagers and the government is a new way of thinking to break the collective action dilemma, and innovatively propose a ‘social capital-trust-cooperation performance’ theoretical framework for dissecting collective action in land marketization and refining the theory of land marketization.

This study contributes to a new theoretical framework of trust-based collective action, with its underlying concepts applicable to countries amid collective action dilemmas in the implementation of land policies, especially in developing countries such as China where land tenure systems are not yet well developed. It emphasizes the

important role of social rationality and the importance of building trust between villagers and the government in the process of land marketisation to promote better land economic activities by the government.

Despite the above findings there are also possible limitations to these insights. This study only constructs a theoretical framework for collective action in rural land marketization, and lacks evidence from empirical studies to support the theoretical framework of social capital-trust-cooperation performance. The next step of this research is therefore to use primary cross-sectional data from the pilot areas to answer what the roles of social capital on building mutual trust between policy implementers and landowners is and how far trust needs to go before leading to cooperation performance. Specifically, the empirical analysis of the impact of social capital on trust, in addition to answering how trustworthiness, internal and external networks, the awareness of institutions and norms affect trust, also seeks to explore whether reciprocity may simply exist if there is no trust. Another part of the empirical research on the relationship between trust and collaboration performance focuses on the impact of different types of trust on collaboration performance and its extent.

2.6 Conclusions

We posit that the adapted conceptual framework for the joint analysis of social capital, trust and cooperation performance would be appropriate to evaluate the market-based land reform in China. This framework detects three elements of understanding the collective action of land marketization-social capital, trust and cooperation performance, and elaborates how these relate. First, we parse the concepts of social capital, trust and cooperation performance and further classify them. It is found that social capital contains three elements: structural, cognitive and relational, trust consists of three types: emotion-based, institution-based and cognition-based and cooperative

performance has two forms: economic performance and social performance. Secondly, the framework describes the connection of social capital and trust, and extend current insights by making an analogy between the three elements of social capital and the three types of trust. Finally, the overall conceptual and theoretical framework for the joint analysis of social capital, trust and cooperation performance for collective action is constructed for land marketisation. It is worth noting that while the framework constructed in this paper uses the example of the market-based land reform in China, it is equally applicable to land reforms associated with collective action in countries where land has been privatized. This is because COCL marketization in China is designed to activate rural land in the transaction process, while western capitalist countries, represented by Britain and the United States, have carried out land privatization reforms though, also to facilitate the capitalized flow of land. In addition, some Commonwealth of Independent States (CIS) and Central and Eastern European socialist countries have a more similar background to China in that they generally suffer from imperfect land markets and unclear property rights, which exacerbate the dualistic structure of agricultural land(Bignebat and Latruffe, n.d.)and the lack of clear and transferable property rights(Csáki and Johnson, 1995). The view of the role of trust in collective action, highlighted in this paper, is somewhat free from the constraints of unclear property rights.

Obviously, we also acknowledge the limitation due to chosen methodology and literature repositories. Although we attempted to aggregate research findings from different literature repositories in different fields, this bias was not spared in the screening and review conducted by individuals. Furthermore, due to the large volume of initial literature screened, we were unable to ensure that all worthwhile literature was included in either the title screening or the keyword and abstract screening.

This study only at a theoretical and literature review level is the beginning of a new research agenda. The next step is to rely on this theoretical framework and select suitable cases for field research with a view to analyzing the relationship between social capital, trust, and cooperation performance through empirical analysis. Considering that the elements of social capital, types of trust and forms of cooperative performance involved in collective action in land marketisation are proposed only at a conceptual level without quantifying them, future work will develop indicators to measure them. Specifically, cases of COCL marketization can be selected to obtain first-hand information through fieldwork using parallel mixed methods technique like saturation logic, triangulation logic, observations, statistics. The empirical research following the data collection is discussed in two parts. The first part of the empirical research aims to explore the influence of three different dimensions of social capital on building mutual trust between policy implementers and landowners. The second part is a dissection of the relationship between trust and cooperation performance in the land marketization process, with data on trust as described earlier and data on cooperation performance including economic performance and social performance. We not only measure cooperation performance to dissect the outcomes of collective action but also explore where/how far trust needs to go before it has a positive impact on collaboration performance.

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Conflicts of Interest: The authors declare no conflict of interest.

Appendix 2.A. (Until 17th May, 2022)

Table 2.A1. Correlation table between social capital and trust.

Terms to the query preview	Web of Science Records
	90
Limited to the	291
two terms	0
"land" and	14
"market"	71
	106
Limited to the	689
term "land"	8519
	0
	789
	495
Not limited to	4353
the term "land"	10
	1
	97

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CHAPTER

3

Chapter 3. Evaluating Collective Action for Effective Land Policy Reform in Developing Country Contexts: The Construction and Validation of Dimensions and Indicators*

**This chapter is based on a published paper as follows: Zhou, L., de Vries, W. T., Panman, A., Gao, F., & Fang, C. (2023). Evaluating Collective Action for Effective Land Policy Reform in Developing Country Contexts: The Construction and Validation of Dimensions and Indicators. Land, 12(7), 1401. DOI: 10.3390/land12071401.*

Abstract

Although land reform can be motivated by different policy objectives, it always involves the participation of many actors. Insights from New Institutional Economics suggest that individual interests that are not aligned with collective interests tend to undermine the goals of reform. This study provides a viable framework and measures for social capital, trust, and cooperation performance and their interrelationships to compensate for the existing separate analysis of these three factors and their rare application in achieving goals of collective action. We also build a strong and deepening theoretical foundation for the indicator design, providing a rich representation of social capital, trust, and cooperation performance. After being presented with variables, indicators are used to further elaborate on the variables to

enhance the richness and science of the indicator design. The validation results of indicators from 12 experts and 223 respondents are to yield an average reliable coefficient as a positive sign of reliability and validity of the evaluation process with Kendall's Co-efficient of Concordance (W) through R programming. This study emphasizes the importance of collective action for sustainable land use and effective land policy re-form, a topic that remains underrepresented in most land reform analyses.

Keywords

Collective action; trust; land policy reform; indicators design; reliability validation

Chapter 3. Evaluating Collective Action for Effective Land Policy Reform in Developing Country Contexts: The Construction and Validation of Dimensions and Indicators

3.1 Introduction

The governance of collective action dilemmas is a core topic in (new) institutional economic discourses. Hardin's 'The Tragedy of the Commons', Albert Tucker's 'Prisoner's Dilemma', and Olson's 'The Logic of Collective Action' are classic models of collective action theory (W, 1950; Hardin, 1968c; Olson, 2009b). Insights from these models demonstrate that the rational choices of individuals lead to irrational outcomes for the collective when individual and collective interests conflict. This situation is known as the collective action dilemma and is often found in land management practices, which often undermines the objectives of land policy reform. In land management practices, the self-interested behavior of participants externalizes costs to others and harms the collective and society, as well as contributing to the difficulty and inefficiency of promoting collective action for land policy reform.

Land policy reform usually starts due to problems in defining or recognizing land property rights, or an uneven distribution of benefits, which leads to deviant policy implementation (Coulson and Milbourne, 2022; Kabigi et al., 2021; Wang and Tan, 2020b; M. Zhang et al., 2021). The explanation and logic of why and how this occurs varies greatly according to different epistemic perspectives. For example, the economic perspective of focusing on the construction of property rights and transaction costs argues that property rights emerge from the economic need to optimize financial benefits and reduce economic costs (Du et al., 2011; Holden and Ghebru, 2016; Kan, 2021). Reforming property rights systems then becomes a question of seeking where and how

costs can be reduced or saved and financial gains optimized. Instead, an ecological perspective reasons for the benefits of ecological services (Bai et al., 2019; Li et al., 2018; Peng et al., 2021; Searchinger et al., 2018). Land reform is then a re-arrangement of land use, such that ecological services can be conserved, preserved, or increased. The jurisprudential perspective prioritizes the legislation and implementation of land policy reforms so that land reform is a process of textualizing and legitimizing specific programs and projects (Boone, 2019; Ramadhani and Abduh, 2021). The planning perspective, however, focuses on demand forecasting and restructuring, land use control, and land development protection (Ding, 2004; Perpiña Castillo et al., 2021; Wysocki et al., 2023; Xia et al., 2021b; Zhang et al., 2020), which means land reform becomes a process of an overall strategic layout and co-ordination of land development, use, governance, and conservation in space and time according to natural and economic conditions. Given these different perspectives, there is a need for an integrative framework, which can include the above perspectives and a behavioral/sociological perspective of land policy reform. As a public thing, governance issue (Olson, 2009b), the collective interest (i.e., equitable and efficient sustainable land use) is considered the starting point of land policy reform, and its realization requires the participation of multiple actors.

Land reform is implemented through the interactive cooperation of policymakers, implementers, and bearers to achieve the rational choice of maximizing collective interests rather than individual interests for social equity and collective goals (Ostrom, 2009a). However, four collective action dilemmas of rent-seeking behavior, the prisoner's dilemma, free riding, and low perceived returns are present in the collective action in land policy reform (Zhou and de Vries, 2022b), leading to stagnation of the reform due to high transaction costs and difficulty of implementation. This makes it

worthwhile to pay attention to how to intervene in individual interest decisions for the better collective interest or how to provide incentives to avoid collective irrational outcomes.

Four key concerns can be addressed about existing scholarship on collective action in land fields. First, there is an insufficiency of literature to dissect how social capital achieves cooperation. Many collective action problems are embedded in pre-existing or ongoing network relationships between organizations or individuals, where social capital often exists in the form of intangible resources and helps achieve the goals of cooperation in that network relationships through participation and shared beliefs on norms, obligations, trustworthiness, and values (Cusack, 1999; Liang et al., 2015; Ruben and Heras, 2012). Visualizing social capital from network relationships is important but has received little attention in land policy reform research. Second, trust plays a vital role in collective actions as it bridges the gap between social capital and cooperation and is used to ease tensions between organizations and individuals. However, only a few scholars have verified the role of trust in land policy reform, and these studies lacked a comprehensive consideration in developing trust indicators, considering only respondents' trust towards specific people in their surroundings, such as trust towards kin, known people, or cadres (Ma et al., 2020b; Rao et al., 2020a). Third, the studies inevitably related to collective action are often accompanied by the terms such as cognition, strong reciprocity, resource dependence, leadership, social capital, sense of community, economic benefits, Ideology, and legitimation (Gao et al., 2022; Koopmans and Rebers, 2009; Meyer et al., 2022; Puga and Moya, 2023; Wang et al., 2022; Xia et al., 2021a; Zhang et al., 2022). There is needed to logically incorporate these terms into an analytical framework to integrate their roles in collective action in land management. Fourth, previous research claims that while the relationship between

social capital, trust, and cooperation performance does exist, a joint analysis between them has not been methodologically established in the land field (Zhou and de Vries, 2022b).

This paper aims to advance progress towards an improved understanding of the dynamics of land reform, as well as the relationship between trust, social capital, and other institutions that shape incentives in land reform, by developing a framework of indicators for quantitative analysis. Focusing on the logic of collective action, the objective of this paper is three folds: (1) clarify the main factors influencing collective action in land policy reform, (2) identify which indicators are capable of explaining these three factors (social capital, trust, cooperation performance) affecting the collective action in land policy reform, and (3) validate these complex indicators through expert assessments and field surveys. This study uses the existing literature to sort out the conceptual and theoretical evolution of these three factors and to construct indicators to evaluate the collective action in land policy reform accordingly. This inferential review aims to design a set of indicators that provide methodological guidance for future empirical analysis of the relationship between social capital, trust, and cooperation performance in collective action to support land management practices and avoid collective action dilemmas.

This paper is structured as follows. Section 2 presents the materials and methods for indicator design. Section 3 clarifies the concepts and theoretical foundations of social capital, trust, and cooperation performance, and emphasizes the role of these three elements on land policy reform. Section 4 constructs the resulting inventory of dimensions and indicators for evaluating collective action in land policy reform. Section 5 validates this set of indicators and discusses the applicability and limitations

of the paper. Section 6 and 7 briefly draws conclusions arising from the research process and further policy application.

3.2 Materials and methods

3.2.1 Research design

Our earlier conceptual and theoretical framework study (Zhou and de Vries, 2022b) is used to provide a valuable guide to discuss the roles and relationships of social capital, trust, and cooperation performance in land policy reform. It frames the joint analysis of social capital, trust, and cooperation performance and thus guides us in identifying dimensions and indicators to evaluate collective action in land policy reform by conducting a literature search on these three elements of the framework.

3.2.2 Databases and terms search

We crossed several publication databases such as Web of Science, Google Scholar, and PutMed to obtain secondary data for this study through a literature search and to find conceptual, theoretical, and empirical evidence of social capital, trust, and cooperation performance. The search terms for social capital included but were not limited, combinations of social capital with social structure, social networks, social relationships, collective assets, strong and weak ties, and structural holes. The search terms for trust included but were not limited to, combinations of trust with risk, transaction costs, social exchange, trust attitude, and trustful behavior. The search terms for cooperation performance include, but are not limited to, combinations of cooperation performance with collective action, economic performance, social performance, risk assessment, etc. In addition to focusing on timeliness, we also looked at the role of classic literature and much-cited literature. In summary, we summarized and reviewed the literature on collective action of land policy reform, intending to

identify important analytical perspectives, dimensions, variables, factors, and indicators.

3.2.3 Indicator design process

We refer to de Vaus's three-step process of indicator development of clarifying the concepts, developing the indicators, and evaluating the indicators (Vaus and Vaus, 2013). Firstly, we separately clarified and defined social capital, trust, and cooperation performance as three determinants of effective land management and reform, which were further specified as characteristic variables in the context of the theoretical literature and decomposed into sorts of variables to express their rich connotations. The second step is to design a set of indicators that help us explain these variables referring to the specific content applicable to the land policy reform context. Finally, we relied on the opinions of experts to assess the indicators to ensure the scientific and rigorous design of the indicators. Kendall's coefficient is then used to compare ranking results of different evaluating opinions to determine their similarities and differences. Consequently, in the following sections, we will provide a comprehensive system of indicators to support the study of collective action on land policy reform in developing country contexts and provide a quantitative basis that bridges the gap between its theoretical and empirical analysis.

3.3 Clarifying the Concepts of Influencing Collective Action for Effective Land

Policy Reform

With reference to conceptual and theoretical models (Zhou and de Vries, 2022b), this section aims to dissect the definitions and characteristics of several vital elements affecting collective action, namely social capital, trust, and cooperation performance,

thus providing the literature and theoretical basis and exploring the defining variables for the indicator design for evaluating the collective action related to land policy reform.

3.3.1 Social capital as a determinant of effective land management and reform

The evolution of social capital has undergone a long journey in modern times and has developed particularly rapidly since the 1980s. This paper sifts through some of the critical perspectives on the definition of social capital listed in a timeline in Table 3.1 to explore the cognitive perspectives and defining variables of social capital. A brief chronology of social capital dates back as far as 1916 (Kajanoja and Simpura, 2000), with Hanifan providing the first clear definition of social capital in the contemporary sense (Hanifan, 1916), as he incorporates factors of goodwill, fellowship, sympathy, and social interaction into social capital. Thereafter, social capital reappeared in Jane Jacobs' book 'The death and life of great American cities in 1961 (Jacobs, 2016), in which she emphasizes the importance of social relations and advocates their use in urban planning. Subsequently, social capital was valued by Loury as the role of social position in facilitating the acquisition of the standard human capital characteristics (G. Loury, 1976).

Since the 1980s, Bourdieu (Bourdieu, 2011a), and Coleman (1990) have generally accepted that structure, relations, and networks are important defining variables of social capital and provided the basis for the concept as it is understood today, but they have different perceptions. Bourdieu saw social capital as individual property dependent on class relations and focused on the uneven distribution of social resources, while Coleman conceptualized social capital as a public good and as a collective asset of the group and did not focus on inequalities resulting from differences in power and status. They all provide implications for subsequent studies. Schiff (SCHIFF, 1992) focuses on the same set of resources of the social structure as Coleman, and Baker

(Baker, 1990) sees social capital as ‘the set of elements of the social structure that affects relations among people and are inputs or arguments of the production and/or utility function’, and emphasizes the resources that Coleman does not distinguish and the ability to wade through the resources through membership in different social structures. In contrast to the dense networks emphasized by previous scholars, Burt (Burt, 1992) argues that it is the non-redundant information (called ‘structural holes’) that drives personal mobility, access to information and resource involvement. He is influenced by Granovetter’s ‘power of weak ties’ (Granovetter, 1973), a term used to refer to the greater variety of resources that can be provided by indirect influences outside the immediate circle of family and close friends. Unlike Granovetter, Burt is innovative in that he argues that the important factor is not the strength of relationships but whether it is duplicative or non-redundant in the network of relationships that have been established. Nahapiet and Ghoshal, based on Granovetter’s discussion of structural and relational embedding (Granovetter, 1973), distinguish three clusters or dimensions of social capital: structural, relational, and cognitive (Nahapiet and Ghoshal, 1998a), with the concept singularly and directly stating actors are invested in social relationships with the motivation of expecting to gain benefits (Lin, 2001).

Sociological analyses of social capital are often based on the potential benefits derived from the formation of social networks and structures because of links between actors or between groups. A new perspective has been introduced by political scientists who equate social capital with the characteristics of social organizations such as towns, cities, and states, the most representative of which is Putnam’s view that social capital refers to ‘features of social organizations, such as networks, norms, and trust that facilitate action and cooperation for mutual benefit (Putnam, 2000b). For Putnam, these features are considered a combination of characteristics such that they can

automatically be compared between cities, regions, and even countries. While he proposes a more specific and tangible definition, he oversimplifies complex and interrelated processes into a single or small group of factors. Portes criticizes his logical circularity of the characteristics of social organization as both cause and effect as further complicating the definition (Portes, 1998) and argues that social capital is an asset embedded in an individual’s relationships with others. From the perspective of self-embedding, he systematically elaborates on the concept of social capital using various theories of dynamics, motivation, and social structure.

Since the 21st century, influential definitions of social capital have generally emphasized the “power of strong ties”. This contrasts with what Granovetter and Paldam (Paldam, 2000a) posit, namely, that ‘social capital is thus a micro concept, but it may be aggregated to the national (macro) level’. Lin considers that social capital may be defined operationally as the resources embedded in social networks accessed and used by actors for actions (Lin, 2001). It avoids the complexity and intangibility of the relational and cognitive dimensions, yet the difficulties remain as we explore the social structural features of access to resources.

Table 3.1. Different views on the definition of social capital.

Definition	Key Characteristic	Defining Variables
Social capital as “good will, fellowship, sympathy, and social interaction among the individuals and families who make up a social unit”(Hanifan, 1916) (Hanifan, 1916, p.130)	The first clear definition of social capital in the contemporary sense	Good will, fellowship, sympathy, and social interaction
It may thus be useful to employ a concept of “social capital” to represent the consequences of social position in facilitating acquisition of the standard human capital	Social position of human capital	Social position

characteristics. (G. C. Loury, 1976) (Loury, 1977)

the aggregate of the actual or potential resources which are

linked to possession of a durable network of more or less	individual property	
institutionalized relationships of mutual acquaintance and	dependent on class	^ durable network
recognition or in other words, to membership in a group	relations	

(Bourdieu, 2011a) (Bourdieu, 1986 p.248)

Social capital is defined by its function. It is not a single

entity, but a variety of different entities having two

characteristics in common: They all consist of some aspect	A collective asset of the	Social structure and the
of social structure, and they facilitate certain actions of	group	individual actions
individuals who are within the structure(Coleman, 1990)		within it

(Coleman, 1990 p.302)

a resource that actors derive from specific social structures

and then use to pursue their interests; it is created by	an emphasis on	Social structures and
changes in the relationship among actors(Baker, 1990)	resources and the	actor relations
(Baker 1990, p. 619)	ability to access them	

the set of elements of the social structure that affects

relations among people and are in- puts or arguments of the	The set of elements of	Social structures and
production and/or utility function (SCHIFF, 1992) (Schiff	the social structure	actor relations
1992, p. 161)		

Social capital is at once the resources contacts hold and the structure of contacts in a network (Burt, 1992) (Burt, 1992 p.12)

Focusing on non- redundant information (structural holes)	Personal property and network structure
---	--

Social capital stands for the ability of actors to secure

benefits by virtue of membership in social networks or otherperspective	The self-embedded	Social network, other
		social structure,

social structures (Portes, 1998) (Portes,1995 p.6)		membership
Social capital refers to ‘features of social organizations, such as networks, norms and trust that facilitate action and cooperation for mutual benefit’. (Putnam, 2000b) (Putnam, 1995 p.67; Putnam, 2000 p.225)	Equating social capital with the features of social organizations from the politician’s perspective	Networks, norms, and trust
“The sum of the actual and potential resources embedded within, available through, and derived from the network of relationships possessed by an individual or social unit” (Nahapiet and Ghoshal, 1998a) (Nahapiet & Ghoshal, 1998 p.243)	Exploring the clusters or dimensions of social capital	Three clusters or dimensions: structural, relational, and cognitive
Social capital deals with cooperation in groups and networks within groups of people. (Paldam, 2000a) (Martin Paldam, 2000)	Discussing the macro and micro aspects of social capital	Cooperation and network
“Social capital may be defined operationally as the resources embedded in social networks accessed and used by actors for actions.” (Lin, 2001) (Lin, 2001 p.24)	Embedded relationships	Social networks

Although ‘social capital means different things to different people’ (Dasgupta and Serageldin, 1999), current debate on social capital are two issues: individual networks or group participation; and micro or macro concepts. The collective action for land policy reform that is the focus of this paper values the reconciliation and conflict of collective and individual interests, and social capital in this context that is neither just individual networks nor just collective participation. So this paper supports the idea that social capital is defined at the micro level of the individual and then aggregated to reach the macro level (Paldam, 2000b). This view sees social capital as a collective asset that

strengthens the credit of individuals, with both economic and social attributes, and as a social relationship with productive efficiency. We review the development of social capital and its multiple connotations, not to obscure the role of social capital in contemporary times, but to grasp contemporary connotations and defining variables, as well as to construct a social order and governance structure for social capital.

3.3.2 Trust as a determinant of effective land management and reform

In developing countries and regions where land systems are not well developed, the lack of expertise and the delay in disseminating information make it difficult for land policies to be transmitted through market mechanisms. Trust, as a medium for resource exchange and mutual cooperation, can facilitate frequent interaction and interdependence among actors, allowing them to share and transfer information. In order to understand the role of trust in collective action and how it affects land management practices for optimal collective benefit, this study summarizes how various authors describe the causes and conditions under which trust arises and its role in land management practices, in the light of social exchange theory and transaction cost theory and expressed in Figure 3.1 and Table 3.2.

Firstly, from the viewpoint of social exchange theory (Homans, 1958b), a smooth implementation of land policy reform requires transactional behavior in which members, such as policymakers, landowners, and land users, exchange valuable resources in an interactive process to achieve a balance between payoffs and benefits. In this reciprocity-based economic activity, trust arises from the recognition and enactment of shared value systems and cooperative interactions, reflected by an open environment with transparent opinions and an emphasis on communication to understand the goals and values of the partners, who have a positive effect on trust (Gebru et al., 2021). Specifically, shared values are the basis for trust generation and

refer to the extent to which members agree on the motivations and goals of the collaboration, which helps to make commitments and define the partnership (Morgan and Hunt, n.d.); relational openness is considered to be an important condition for relationship linkage (De Jong and Woolthuis, 2008), which involves not only sharing comprehensive and current information together but also sharing each other's opinions, helps to resolve disputes and adjust views and expectations on the same matter, and will facilitate the creation of trust once a partnership is established or an agreement is signed; moreover, communication is one of the elements for trust formation (Young-Ybarra and Wiersema, 1999), which leads members to understand the motives and purposes of partners, their ideas about exchange behavior and to become more aware of each other's traits.

Secondly, transaction cost theory (Williamson, 1985b) suggests that transaction costs include search and information costs, bargaining and decision costs, and policing and enforcement costs. Transaction costs theory posits that trust can reduce transaction costs as it will not require monitoring, enforcement, and policing. When applied in the context of land reform in China, for example, the rural land market-based reform in China has gone through the stages of entry permit, land consolidation and development, transaction, and project construction (L. Zhou et al., 2020b). To avoid potential speculative behavior or betrayal in short-term partnerships, trust is built through economic constraints such as contracts or equity models (De Jong and Woolthuis, 2008; Heimeriks and Schreiner, 2002; Hurmelinna et al., 2005), which increase the reliability and predictability of partners' behavior, reduce opportunistic behavior, and facilitate the willingness to cooperate.

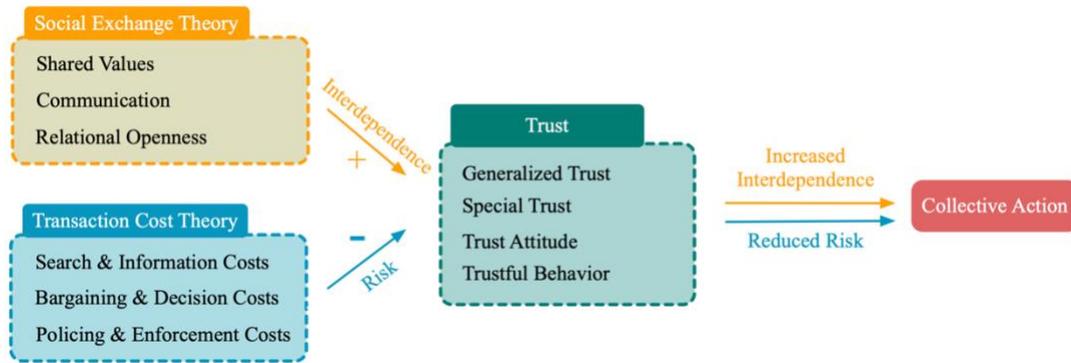


Figure 3.1. The path analysis on the effect of trust on collective action.

Table 3.2. A comparative summary of the meaning of trust in the two theories.

Theory	Main Tenets	Theory Posits on Building Trust
Social exchange theory	Exchanging valuable resources in an interactive process to achieve a balance between payoffs and benefits	Shared values, relational openness, communication
Transaction cost theory	Potential speculative behavior or betrayal in partnerships	Reducing opportunistic behavior and cooperation risks

Trust is thus constructed on two basic conditions: interdependence, where collective benefits depend on others and the degree of interdependence affects the degree of trust; and risk, which refers to the potential for perceived losses by members, where increased transaction costs increase the risk of cooperation. Collective action is dependent on the provision of adequate information and complementary resources within the organization to reach and execute collective action, and the exchange of information and resources generates significant transaction costs that discourage

collective action. Trust can reduce uncertainty and risk in cooperation by reducing costs and increasing interdependence (Hurmelinna et al., 2005).

While there is a consensus on the importance of trust, there are different ways in which an author defines trust in different disciplines, as trust itself involves complex factors such as individual psychological traits, relational networks, social structures, contexts, ethnicity, history, culture, as well as presuppositions of the ways of thinking of scholars in different fields. Some scholars focus on the static attributes of trust attitude such as sentiment, belief and motivation (Lewis, n.d.; Roger C. Mayer et al., 1995; “McAllister - 1995 - Affect- and Cognition-Based Trust as Foundations f.pdf,” n.d.; Moorman et al., 1992; Rampersad et al., 2010), arguing that trust is a positive expectation of others’ good intentions and willingness to take risks; others focus on the dynamic dimension of trustful behavior (Lewicki et al., 1998; P. Shockley-Zalabak et al., 2000), arguing that trust is a positive expectation of behavioral intentions arising from the performance of the object of trust.

Academic views on the connotation of trust have so far been ambiguous and divergent (Mcknight and Chervany, 1996; Shapiro, 1987; Yamagishi and Yamagishi, 1994). One of the most cited definition of trust is that of (Roger C. Mayer et al., 1995): ‘the willingness of a party to be vulnerable to the actions of another party based on the expectation that the other will perform a particular action important to the trustor, irrespective of the ability to monitor or control that other party’. This view reflects a belief that trust is the willingness to take risks, and only in a risky situation can there be a demand for trust, which is suitable for the role of trust in collective action in land policy reform described in this paper. Trust can be classified according to the object of trust as generalized trust and special trust, representing trust to people in general and trust to unknown people or in particular institutions respectively (Paldam, 2000b).

Trust supports coping with uncertainty (Lusch et al., 2003), reduce complexity, (Luhmann, 1979) and increase trustworthiness (Ingram et al., 2016), and there is a need to strengthen trust and build cooperative relationships among members in land management practices. A comprehensive understanding of trust in terms of its definition, static and dynamic properties, and generalized and special trust allows members in land practices to build high levels of trust and promote smoother collective action. The speed of information flow affects the level of transaction costs, and a high level of trusting relationships can lead to high levels of actor communication, with people more willing to share information with others, increasing interdependence and reducing transaction costs to improve efficiency (Levin and Cross, 2004; Lyon, 2000). A highly trusting network environment will make it easier to introduce new land policies and encourage rapid and frequent innovation.

3.3.3 Cooperation performance as a determinant of effective land management and reform

The collective action in land policy reform exists four collective action dilemmas: rent-seeking behavior, the prisoner's dilemma, free riding, and low perceived returns (Zhou and de Vries, 2022b). Social networks and repeated interactions are often considered viable solutions to the collective action dilemma (Diani and McAdam, 2003; Gould, 1993; Kim and Bearman, 1997; Marwell and Oliver, 1993b). Social networks contain social capital between individuals or groups, and the cooperation of members facilitates the circulation of social capital in social networks so that collective action can proceed smoothly (Smith et al., 2003). Repetitive interactions are designed to solve communication problems in collective action. Even when members are fully motivated to cooperate, they still need to understand each other's motivations and build mutual trust to avoid the possible risks of cooperation (Olson, 2009b; Gambetta, 1988). Trust

and reciprocity formed through repeated interactions rather than altruism allow for escape from collective action dilemmas and facilitate mutual cooperation (Baldassarri, 2015).

Performance is how effective cooperation is judged. Many economic models of performance measurement assume that people only seek material benefits and are not concerned with ‘social’ goals (Fehr and Schmidt, 1999; Panman, 2021). For example, access to finance and deliveries of coffee production has been used to measure the cooperation performance of five coffee cooperatives in Ethiopia (Ruben and Heras, 2012). Similarly, the extent to which members sell their coffee through the producer organization and farmer participation in the life of the producer organization is a measure of the collective outcomes of farmers’ production organizations in Uganda (Baldassarri, 2015). The direction of land reform in China is market-based allocation of land resources, and optimizing the “allocation efficiency” and “investment efficiency” of land resources is the economic goal of improving the market mechanism (Tao, 2021). However, the social objectives of land reform deserve to be taken seriously. In the face of imperfect social welfare in the developing country, there appears to be increasing consensus that the social security function of rural land is an important engine driving land policy reform (Ma et al., 2015b; van Gelder, 2010; Wang et al., 2013).

It is worth noting that successful cooperation does not imply that there are no potential risks at all. Instead, collective action may be achieved through participation or negotiation by members, influenced by the distribution of power, or it may be following traditional or customary behavior of members. The former requires equal power relations, while the latter is based on power hierarchies (Stern, 2005). Some deeply-rooted democratic traditions exist through customary systems of consultation

(such as in countries that strongly rely on customary systems), as evidenced by the fact that while there may be some shared ethics in traditional or customary behavior, the dominant social norms usually result in cooperation under unequal social relations (Bardhan, 1993). This may trigger possible pitfalls in the behavior of farmers and policymakers in public goods games under traditional authority. Second, several reasons such as the heterogeneity of members, their different goals with management in the organization, the cost of information, and the nature of collective action itself may hinder such stable outcomes (Staatz, 1989), even if members are more inclined to show higher willingness towards social networks they trust, especially in situations of high risk and uncertainty (Carolan, 2006; Taylor and Van Grieken, 2015; de Vries et al., 2015; Rust et al., 2020).

3.4 Developing a Set of Indicators to Evaluate the Collective Action in Land

Policy Reform

A universal measure of collective action may not be totally ideal given the significance of context in the processes of land policy reform, and that improving its measurement in specific circumstances still makes sense (Perkins and Zimmerman, 1995). The study, relating various dimensions and indicator designs of social capital, trust, and cooperation performance is required to advance its measurement both conceptually and practically. The respondents target the bearers of land policy reform.

3.4.1 Constructing a theoretical framework for indicator design

This paper constructs a set of indicators for the joint analysis of social capital, trust, and cooperation performance, consisting of 47 indicators and 9 questions that can feasibly guide the in-depth analysis of collective action for land policy reform, and its specific ideas are shown in Figure 3.2.

The indicators of social capital are constructed on a macro-meso-micro scale and correspond to each of the three dimensions of social capital. Macro-scale indicators are designed to focus on respondents' perceptions of institutions and norms in society. The network structures constituted by actors and relations in groups and organizations are detected in meso-scale, and micro-scales focus on the impact that the attributes and traits of individuals have on collective action.

Generalized trust, special trust, trust attitude, and trustful behavior comprise the four aspects of constructed trust indicators. The overall trust of respondents is considered through generalized trust, while special trust explores respondents' trust in specific relationships, such as relatives, partners, policy implementers, and religious personnel. Trust attitude is divided into macro, meso, and micro scales to analyze each of the three types of trust, while trustful behavior is the behavioral choice of the respondent to trust or not in several specific scenarios.

Cooperation performance is an indicator constructed on the basis of three dimensions of economic performance, social performance, and risk assessment. Economic performance is the result of input-output efficiency achieved through collective action, while the focus of social performance not only on material rewards and emotional needs at the individual level, but also on social welfare and public services at the collective level. In terms of risk assessment, we assess both the overall risk of the partnership and separately the sustainable satisfaction, coordinating efforts and dependence in the future.

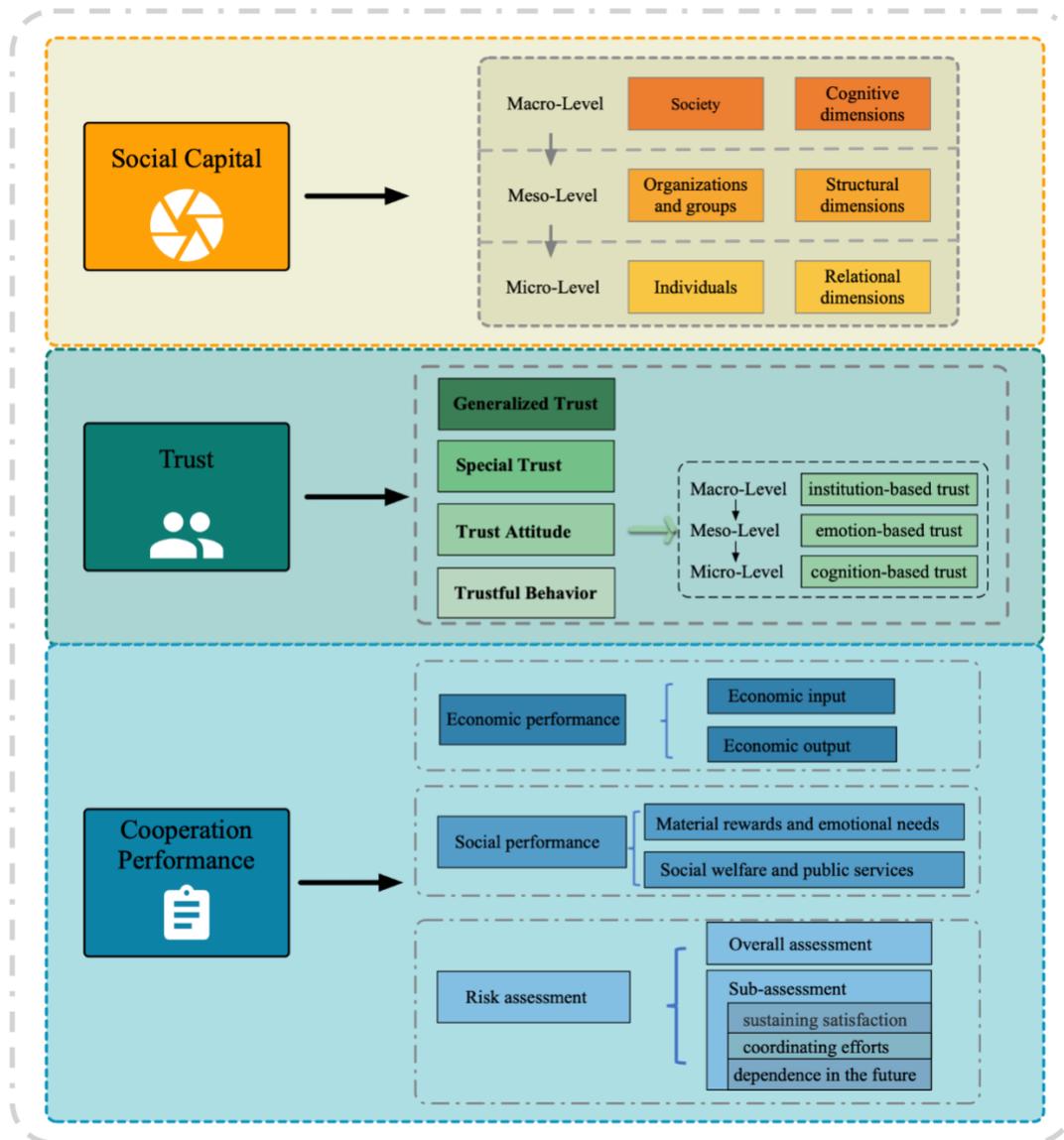


Figure 3.2. The theoretical framework for indicator design to evaluate the collective action in land policy reform.

3.4.2 Framing a set of indicators for measuring social capital in the land policy reform

‘It’s not what you know, but who you know’. is often used to describe the power of social capital. Most scholars consider social capital to be multidimensional and an umbrella term for a set of social factors. For example, Ostrom (1994, 2000) outlines (1)

trust and (2) reciprocity, (3) networks and (4) rules or institutions are four essential elements of social capital (Elinor Ostrom, 2000; Ostrom, 1994). Putnam (1995, 2000) believes that the elements of social capital such as trust and norms of reciprocity, networks, and institutions are mutually influential (Putnam, 2000b). Grootaert (2001) analyzes three basic sets of indicators: (1) membership in associations and networks, (2) trust and adherence to norms, and (3) collective action (the result of both) (Grootaert, 2004). It thus appears that social capital is about (1) social factors that influence human behavior, (2) social ties, and (3) behavioral norms and shared understanding.

Combining several influencing factors of social capital, we offer a paradigm for exploring social capital at three scales: macro, meso and micro. The macro scale, at the societal level, refers to the socially constructed norms and value systems that depend on the policy environment provided by the state and government agencies. The focus is on institutional norms, which can be more informative if they are effective. The meso scale relates to groups and organizations and refers to social relations and network structures that increase the possibilities of access to resources. Different social contexts in which social relationships are embedded may create different types of network relationships, such as power networks, communication networks, kinship networks, etc. The micro-scale involves a focus on the roles and characteristics of actors in social relationships in a policy context at the individual level, where credible people can generate positively valued capital. The three macro-meso-micro scales correspond to the three dimensions of social capital, cognitive dimensions, structural dimensions, and relational dimensions.

Our previous research provides theoretical guidance for indicator design (Zhou and de Vries, 2022b). It describes that at the macro scale, the institutions and norms, and

strategic goals are two variables that can measure the cognitive dimension of social capital, while the relational dimension of social capital is measured as the policy bearers' trustworthiness to policy implementers and willingness to share information at the micro scale. The structural dimension of social capital at the mesoscopic scale explores the frequency of contact between family members and others. With reference to the previous review of the theory and the perception of social capital, we further frame a set of indicators for measuring social capital in the land policy reform (Table 3.3) and assess them with the five-point Likert scale, ranging from totally disagree (1) to totally agree (5). The indicators in Series A help to ascertain the cognitive dimension of social capital at the macro level. Of these, indicators A1.1 measure the evaluation of policy makers by the policy bearers in the different processes of land reform policy, while indicators A2.1 and A2.2 assess the bearers' identification with the implementors' objectives and governance. Series B is used through the frequency of contact with stakeholders to identify the structural dimension of social capital at the meso level. Series C is set to describe the relational dimension of social capital at the micro level, which includes indicators C1.1- C1.8 measuring the bearers' trustworthiness (e.g., integrity, benevolence, capability, reputation) to policy implementers and indicators C2.1-2.2 assessing the bearers' willingness to share information.

Table 3.3. Measurements of three dimensions of social capital.

No.	Dimension	Variable	Indicator
A1.1	Macro level: Cognitive	Institutions and norms	Satisfaction with policy makers in the full life cycle of land policy reform

A2.1	dimension		Identification with the objectives of land policy reform
		Strategic goals	
A2.2			Identification with governance of land policy reform
B1.1		Relatives' relations and network structures	Frequency of contact with family members
	Meso level:		
	Structural		Frequency of contact with others (e.g., neighbors, village representatives, members of organizations, members of township governments, members of county government departments, landowners)
B1.2	dimension	Social relations and network structures	
C1.1			Public notification
		Integrity	
C1.2			Correct information provided
C1.3			Respected views
		Trustworthiness	
C1.4			No misguided decisions
		of policy implementers	
C1.5	Micro level:		Capacity of policy implementers to make the right decisions
	Relational	Capability	
C1.6	dimension		Capacity of policy implementers to complete land policy reform
C1.7			Extensive experience or success cases
		Reputation	
C1.8			Professional skills of policy implementers
C2.1		Willingness to share information	Open information

3.4.3 Framing a set of indicators for measuring trust in the land policy reform

Trust is a social lubricant that facilitates effective socio-economic functioning by building and reconciling human relationships. The measurement of trust is supposed to be multifaceted, and through the analysis of the critical role played by trust in the previous section and the pathways it takes to influence collective action, a following set of indicators is needed to set to measure the trust in the land policy reform through asking respondents about the variable trust in a given situation, ranging from total distrust (1) to total trust (5). We propose to construct indicators of trust in four dimensions of generalized trust, special trust, trust attitude, and trustful behavior, which is conducive to gaining insight into respondents' mutual trust relationships with other relators and increasing the effectiveness of their motivation to cooperate.

First, generalized each trust is measured through Series D of Table 3.4. For example, a policymaker can reach a judgment about a respondent's perception of generalized trust by asking whether one would be very careful with others or would trust most people; or whether the perception exists that most people would try to take advantage of each other or whether each person treats each other fairly.

Second, series E constitutes indicators of special trust. Four social relationships—kinship, partnership, political, and consciousness—are welcomed to explore the extent to which respondents trusted specific actors they had different relationships within land policy reform, including parents, relatives, group members, administrative organizations, government officials, and religious.

Third, series F to G of Table 3.4 describes the measurement of the trust attitude. The three types of trust are associated with the three dimensions of social capital illustrated by our previous findings (Zhou and de Vries, 2022b). We also find that the three types of trust correspond at three scales, macro, meso, and micro. Institution-based trust is analyzed at the macro scale and is used to analyze the sense of security

that institutional provisions and norms bring to respondents to facilitate their trusting relationship with the policy implementer. At the meso scale, emotion-based trust is used to understand the mutual relation between trust and dependency built up through frequent interactions over time. Cognition-based trust at the micro-scale focuses on the willingness to trust through the respondents' perceptions and risk assessments of the policy implementer.

Fourth, in terms of the trust performance of series H, we set up different contexts such as social environment, land system, product, investment, and speculation to infer the likelihood of trust decisions being influenced by subjective reasons such as personal characteristics through the behavioral decisions made by respondents in different contexts and respondents' personal characteristics and preferences.

Table 3.4. Measurements of the generalized trust, special trust, trust attitude, and trustful behavior.

No.	Dimension	Variable	Indicator
D1	Generalized trust		To trust the community or group
D2			To assume the community or group to be trusted
E1	Special trust		Trust in special relationships (e.g., kinship, partnership, political relation, ideological relation)
F1.1	Trust attitude	Macro level: Institution-based trust	Agreement by way of a contract
F1.2			Effective provisions on rights, obligations, income distribution
F2.1			Meso level: Emotion- Communication capacity for policy makers

F2.2		based trust	Patience of policy makers
F2.3			Open discussion in the group meeting
F3.1		Micro level:	Capacity for efficient policy implementation
F3.2		Cognition-based trust	No mid-adjustment commitments
G1			Capacity to take risks in poor areas
G2	Trustful	Behavioral preferences	Willingness to land investment under unsecured property rights
G3	behavior	in different contexts	Willingness to grow new crops
G4			Willingness to borrow money to invest on land
G5			Willingness to buy lottery tickets

3.4.4 Framing a set of indicators for measuring cooperation performance in the land policy reform

Based on the literature review of cooperation performance in Section 2.3, we find that the goal of economic performance is to minimize costs and improve efficiency, while social performance lies in the achievement of social goals, such as individual development and social progress. However, risk assessment is also necessary because reform inevitably brings contradictions, cooperation encounter obstacles, and assumed stable outcomes might be contestable when shaken by risk and uncertainty. So, cooperation performance has three main aspects of measuring whether excellent land management practices will be achieved: economic performance, social performance, and risk assessment, which is measured through Table 3.5.

The first aspect is economic performance, which lies in whether the cooperation in land policy reform has contributed to efficiency. Efficiency focuses on economic inputs

and outputs, and a set of input-output efficiency indicators are selected including economic input indicators such as fixed asset investment and energy consumption, and economic output indicators such as earth give rate and rate of return on investment.

The second characteristic is social performance. Collaborative decision-making is easier to pursue only when the participants create and maintain the social goals of the collaborative process of reform practice. Social performance is measured at the individual level by exploring the material rewards and emotional needs of the actual recipients of the reforms, and at the collective level by exploring the social benefits and public services that result from the reforms. Social performance is measured at the individual level by exploring the material rewards and emotional needs of the actual bears and at the collective level by exploring the social benefits and public services that result from the reforms.

The third issue is risk assessment, which is a subjective perspective on respondents' performance and the effects of collective action. It is impossible to fully assess the subsequent impacts and outcomes of land policy reform from the appearance of implementation or disruption, but it is still necessary to predict the risks associated with the reform by understanding the individual participants' assessment of the reform. Table 3.4 presents 8 indicators to measure the cooperation performance from the risk assessment with an overall assessment and sub-assessments. Respondents' overall assessment includes process assessment, personal evaluation, and time cost. We then sub-assessed the risk assessment in terms of sustaining satisfaction, coordinating efforts, and dependence in the future (Anderson and Narus, n.d.) and applied it to land policy reform.

Table 3.5. Measurements of cooperation performance.

No.	Dimension	Variable	Indicator
H1	Economic performance	Economic input	Fixed asset investment
H2			Energy consumption
H3		Economic output	Earth give rate
H4			Rate of return on investment
I1	Social performance	Material reward	Degree of improvement in quality of life
I2		Emotional need	Sense of security
I3		Social benefit	Changes in employment rates
I4		Public service	Changes in public infrastructure
J1	Risk assessment	Overall evaluation	Evaluation of land policy reform (well progressed or successful)
J2			Duration of the mediation process
J3		Sustaining satisfaction	Have own sustainable profit
J4			Support for land policy reform
J5		Risk	Achievement of expected goals
J6		Coordinating efforts	Fulfillment of policy bearers' expectations of reform
J7		Dependence in the future	Support for subsequent related reforms
J8			An honest and trustworthy attitude for future cooperation

3.5 Validating the Dimensions and Indicators of Evaluating Collective Action

The indicator design needed to be tested to verify its effectiveness with a methodological process of detecting the concordance of the indicators. The indicators are assessed by various attributes in terms of comprehensibility, clarity, measurability, and relevance. For comprehensibility, they were asked to determine if it had a clear and easily interpretable definition that could be understood by anyone. Clarity was evaluated in terms of consistent interpretation by all individuals. Measurability was gauged by the indicator's ability to generate data that could be analyzed either quantitatively or qualitatively. Relevance was measured to evaluate the indicator's capacity to represent or capture the aspects of the subject under study.

The assessments of our contributions were evaluated by 12 international experts. This process allowed us to obtain different perspectives from experts in the relevant fields or from individuals involved in land policy reform. For the selection of experts, we preferred that they work in land management, urban planning, architecture, human ensure geography, and other related fields and are from developing countries such as Morocco, Ghana, Rwanda, Iran, India, Indonesia, China, Mexico to ensure the professional and scientific validity of their opinions. The judgments about measures of experts' attitudes to the indicators were measured on a 5-point Likert scale with criteria including comprehensibility, clarity, measurability, and relevance (Planas-Lladó and Úcar, 2022).

We apply Kendall's co-efficient of concordance (W) (Kendall, 1938) to measure the concordance between their assessments of experts for all of the dimensions and indicators based on the consulted criteria. The closer the ranking orders of two variables, the closer Kendall's coefficient is to 1, and conversely, the less similar the ranking orders, the closer Kendall's coefficient is to -1. In our study, if the ranking

results were consistent, it would indicate a high degree of agreement among the evaluators on the importance or performance of the four criteria items of comprehensibility, clarity, measurability, and relevance. This can be seen as a positive sign of the reliability and validity of the evaluation process. Kendall's coefficient is an important statistical tool that can help us compare and choose between different evaluation indicators to better evaluate and optimize designs. The validation results generated with the package 'irr' in R programming yield a reliable coefficient in assessing the concordance level of indicators and are finally presented in Table 3.6.

The value of Kendall's coefficient of concordance, which ranges from 0 to 1, reveals a significant concordance ($p = 0.000 < 0.05$) between the experts for all criteria. Since the strength of the concordance increases with an increasing Kendall's value, the values in Table 3.6 show that a greater degree of concordance exists when the value of Kendall's tau is over 0.5. Specifically, the four inter-rater reliability indices generated from the criteria of comprehensibility, clarity, measurability, and relevance measured by experts are 0.621, 0.675, 0.659, and 0.741, respectively. Although the degree of concordance for these four criteria has not much of a difference, there was a larger concordance for relevance than the other three. The higher score in "relevance" suggests a stronger concordance between the indicator and the research topic, which leads to greater attention and emphasis on the indicator in the research and could play a more significant role in decision-making or evaluation processes.

Table 3.6. Kendall's co-efficient of concordance (W) for assessment of comprehensibility, clarity, measurability, and relevance by judging groups.

Criteria	Expert Judges
----------	---------------

	Kendall's TAU	Chi-Squared Value	<i>p</i> -Value
Comprehensibility	0.621	68.3	0.000
Clarity	0.675	74.1	0.000
Measurability	0.659	72.4	0.000
Relevance	0.741	81.5	0.000

3.6 Discussion

This paper reinterprets the operation of land management practices, structures the analytical orientation of collective action in land management practices, and provides the literature and theoretical basis for subsequent empirical studies. Given the importance of social capital, trust, and cooperation performance and their interrelationships, this paper firstly composes and summarizes the historical review and different views of social capital; next, it analyzes the path of the effect of trust on collective action from social exchange theory and transaction cost theory, then creatively proposes a risk cue for cooperation performance, that is, successful cooperation does not mean the absence of potential risks, and finally proposes the dimensions and indicators for evaluating collective action and validate them for reliability.

The proposed indicators are applicable in land policy reforms or in land management practices that rely on collective action characteristics in developing countries. Although these indicators are not limited by systems where land is publicly or privately owned, the focus on participatory land management and collective action-

related land reform is particularly relevant for land management practitioners. This is because developing countries tend to face similar land problems due to inadequate land systems, such as unclear land rights (Brahma and Mushahary, 2022; Kahlaoui,

2023; Y. Zhou et al., 2020b), unequal land distribution(de Zwart and Soekhradj, 2023; Isabel et al., 2022), effective land governance(Ameyaw and de Vries, 2021; Chitonge and Harvey, 2021), and land use fragmentation(Aguilar et al., 2022; Mulyani et al., 2022; Ntihinyurwa and de Vries, 2021). In the face of the constant land disputes and conflicts, developing countries are still struggling with how to regulate their land management, yet it is difficult to cope with the fast changes in very complex land property rights and imperfect land markets, making it difficult for public sector practitioners to structure and formulate reliable policies for land governance. Moreover, the information mismatch and inequality between the government and individuals prevalently observed in these areas leads to a dominance of government authorities on the one hand and low participation of individuals during land management interventions on the other.

In this paper, we combine specific theoretical analyses to develop indicators further to measure the relationship between social capital, trust, and cooperation performance, and provide methodological guidance for subsequent empirical studies based on data collection. Collective action is currently performing the role of describing coordinated behavior in policy reform. Trust and social capital are conditions for collective action(Arnott et al., 2021; Ballet et al., 2007; Bouma et al., 2008; Gao et al., 2019; Ho, 2014b; Yang, Xiuyun and Ho, Peter, 2018), while cooperation performance would be an outcome of certain types of behavior (de Vries et al., 2015; Tan and Heerink, 2017). This study bridges the gap in the current research, which has no extensive debate and no established framework over how best to develop an inventory of collective action dimensions and indicators, and also lacks systematic and comprehensive indicators for guiding empirical studies in the aspect of land management practices instead of interpreting with descriptive arguments and findings from the field research. A

quantitative framework can help identify important variables of collective action, which can be linked to actual land management characteristics through indicator construction, and thus guide empirical research to find ways to solve collective action dilemmas.

There are some unavoidable limitations to the indicator design in this paper. Firstly, the indicators are designed to address a targeted problem and concentrate on collective action dilemmas such as rent-seeking behavior, the prisoner's dilemma, free riding, and low perceived returns, which are prevalent in the process of land policy reform. Secondly, the indicator selection is driven by literature review and theoretical knowledge rather than data. Although we provide as exhaustive a set of indicators as possible to provide methodological guidance for empirical research, this does not mean that every indicator must be indispensable, as otherwise data acquisition may become a sometimes-daunting task. Moreover, while our indicators are designed to address specific issues without being overtly local, our study still offers ideas to address the collective action dilemma, allowing scholars to interpret or rework them. It is worth pointing out that the indicators are designed to address specific issues but not overtly local, which means that our study still offers ideas to address the collective action dilemma and is open to interpretation or revision by researchers. Thirdly, this indicator system focuses on individual micro-data, which needs to be obtained through field research rather than open-source databases in the face of different geographical and cultural backgrounds. We also cannot deny that individual choices are meaningful and that their perception of society, groups, and individuals determines the use of social resources. Fourthly, although experts have tested the set of indicators, we still need more scientific justification from more researchers through empirical studies to support our addition, amendment, and deletion of the indicators in the future.

3.7 Conclusions

Based on a conceptual or theoretical framework for the joint analysis of social capital, trust, and cooperation performance argued in the previous paper (Zhou and de Vries, 2022b), this study designs a set of well-established indicators constructed from the extensive literature and related theory about measuring social capital, trust, and cooperation performance with a narrative review approach, thus providing the methodological guidance for the empirical study of collective action on land policy reform.

The novelty of this study is that by focusing on the context of collective action in land policy reform, it provides the viable framework and measures for social capital, trust, and cooperation performance and their interrelationships to compensate for the existing separate analysis of these three factors and their rare application in the discipline of land management. Although these indicators may not claim to capture the complexity of collective action in land management entirely, they build a quantitative platform for studying the interaction of social capital on trust as well as trust on cooperation performance, which is essential for the successful implementation of land system reform. Secondly, we also build a strong and deepening theoretical foundation for the indicator design through a literature and theory review, providing a rich representation of social capital, trust, and cooperation performance. After being presented with a series of variables, we use indicators and questions to further elaborate on the variables to enhance the richness and science of the indicator design. In addition, the indicator design can be applied to a wide range of land policy reforms or land management practices with collective action dilemmas, not limited by the level of economic development or land ownership system.

This study is far-reaching because it achieves four key objectives. The first is that it provides an exhaustive overview of the definitions and characteristics of social

capital, trust, and cooperation performance, based on a literature and historical review that looks at land policy reform through the lens of actor socialization. Secondly, it identifies the importance of trust, creates an important relationship with social capital and cooperation performance, and builds a mutual link between these three. The third objective was to develop a logical framework for the indicators, conceptualizing social capital, trust, and cooperation performance into variables that would form the basis for the indicator design. Last but not least, it designs a set of indicators to provide methodological guidance for empirical research on the collective action dilemma of land policy reform. However, this study also has its shortcoming. Data collection for the set of indicators is proposed to be conducted through micro-research, but due to staff and geographical constraints, there may be a need for a more geographically broad data representation to capture all our variables of interest.

In the follow-up study, we aim to explore the application of these indicators to the case study in developing countries. This set of indicators is only the beginning of a new research dimension by introducing a joint analysis of social capital, trust, and cooperation performance concerning the theoretical framework of previous studies to the study of land policy reform. Future research should explore how and when collective action functions effectively through the application of this set of indicators in empirical research. Further empirical research is needed to identify trust as an explicit objective and parameter in land management practice, which would be a breakthrough to address the dilemma of collective action and better avoidance of coercive policy interventions and unequal social relations.

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CHAPTER

4

Chapter 4. Actors and network in the marketization of collectively-owned operating construction land(COCL) in rural China: A pilot case of Langfa, Beijing*

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Abstract

This study investigates the actors in the entry process of rural collectively owned operating construction land (COCL) into the market, as well as their communication network features, relying on social network analysis and semi-structured interviews. We quantify varying centrality metrics of actors or stakeholders in the marketization network, analyze their roles and positions by identifying cohesive subgroups via blockmodeling, and then scrutinize the information exchange and the flow of brokers. Results suggest that the township-level government and the land joint management company are at a core position with a high-level control over contact and information, both playing important brokerage roles. The village-level property owners are at a peripheral position where their appeals appear lack of policy attention. This relates to the subgroup structure in the marketization network, in which core actors at the district/township level are less connected with village-level stakeholders, resulting in

an uninformative delivery of villagers' opinions. This study helps researchers and practitioners clarify the actors' roles intertwined in the communicative process of COCL marketization in China.

Keywords

Rural collectively owned operating construction land (COCL) marketization; communication network; stakeholders; social network analysis; Langfa area in Beijing

Chapter 4. Actors and Network in the Marketization of Rural Collectively Owned Operating Construction Land (COCL) in China: A Pilot Case of Langfa, Beijing

4.1 Introduction

For promoting sustainable rural development and urban-rural coordination, many studies have focused on rural land issues, including rural land use change (Chen et al., 2010; Van et al., 2015), rural land acquisition (Campion and Acheampong, 2014; Hall et al., 2015; Shan et al., 2017), and rural land revenue distribution (Leibbrandt et al., 2010; Oyvat, 2016). In China, rapid and uneven urbanization processes have resulted in scarce land for urban construction² while a large amount of migration from villages to cities has left vacant land in rural areas. This leads to a considerable land-use contradiction between rural and urban regions, often inciting village collectives or villagers to illegally transfer rural land property to the individual outside the village for urban development³. This contradiction is associated with problems such as waste of land resource, damage of the rural living environment, and loss of farmers' land ownership. Thus, how to revitalize rural collective land for meeting market demand for urbanization has recently received heat debates in the fields of land use planning and policy in China.

The central government of China has recognized such a contradiction between urban and rural land use and issued a series of national policies and regulations. For example, in November 2013, the *Decision of the CCCPC on Some Major Issues*

² Construction land in China is a major type of land used for human buildings, differing from other land uses such as farmland and undeveloped land.

³ The *Land Administration Law* in China stipulates that the rural collective land can be traded only if it is converted to be state-owned. But recently, in December 2018, a draft amendment to the *Land Administration Law* and the *Urban Real Estate Management Law* was issued to delete this stipulation. It implies that in the near future, the use of rural construction land would no longer have to be transformed into state-owned land.

Concerning Comprehensively Deepening the Reform was the first official proposal to allow the entry of rural collectively owned operating (or profit-oriented) construction land (COCL)⁴ into the market – that is, to be sold, leased and appraised as shares – under the regulation of land use planning and controls. The *Decision* also affirms that COCL can enter the market with the same right and price as state-owned land. Since 2015, 33 county- or district- level administrative areas have been selected as pilot places for executing the COCL marketization. This strategy has great potential to resolve both issues of land scarcity in urban areas and land prodigality in rural areas.

Some studies have investigated the processes and obstacles of COCL marketization (Guo et al., 2015; Zhou and Liu, 2018) and summarized the experience in pilot areas (Luo et al., 2017; Tang, 2018). Many interest groups, or stakeholders, are found to be involved in the marketization process. How to effectively balance their interests has become one of the most important issues for successfully propelling the marketization reformation. While most existing studies have provided qualitative and descriptive analyses on the interest appeals, conflicts, and negotiation gaming among stakeholders (Zheng et al., 2017; Fu et al., 2017), few have deeply looked at relational ties and the communicative network among stakeholders in the marketization process.

This study thus first identified key social actors or stakeholders in the entry process of COCL into the market. Since the promotion of COCL marketization is a relatively new land policy in China and now mostly remains at the pilot stage, it is a challenge to recognize actors and their communicative connections in the marketization process that varies with local contexts. This study relied on a semi-structured interview and a snowball-way social network survey in 2018. We conducted the survey in the Langfa

⁴ COCL is a type of rural collective construction land. The other types include residential land, public facilities, and public welfare land.

area at the Daxing District of Beijing, one of 33 pilot areas with the COCL entry permit in China. Further, we applied the approach of social network analysis (SNA) to visualizing and measuring the communicative network structure of the COCL marketization. Few studies have developed a SNA framework to scrutinize the roles of stakeholders in the procedure of sharing and exchanging information during land development, especially under the context of COCL marketization.

The rest of the paper is organized as follows. Section 2 reviews rural land and marketization COCL in China studies. Section 3 introduces Langfa Area and data source and the SNA approach. Section 4 provides major findings from network analysis. The last section concludes and discusses policy implications.

4.2 Literature Review

4.2.1 Tensions and ties among stakeholders in the process of rural land development of China

Tensions between stakeholders in China's land development have long been exhibited, stemming from the urban-rural dual-track system (Tan et al., 2018). Under this system, rural land is owned by village collectives and used by villagers while urban land is owned by the state and used by city residents. Although this system had existed since the new China in 1949, it brought no much conflict between rural and urban land users until the early 1980s, before which rural and urban lands were parallelly developed without much interaction. However, since the early 1980s, China has experienced a rapid process of industrialization, along with urbanization. Some cities have quickly expanded to the urban fringe and occupied the rural land, while villages have used their construction land to develop township and village enterprises (TVEs) (Kung and Lin, 2007). These lead to an increasing conflict between land developers, local government, village collectives, and villagers (Chen and Rozelle, 1999).

Facing the conflict, the central government revised the *Land Administration Law* in 1998 for rectifying the transfer market from rural land to urban land. The revision regulated that “any unit and individual needing to use lands for construction must apply for the use of state-owned lands according to the law” (Article 43) and “the usage right of lands owned by peasant collective shall not be remised, transferred or leased for non-agricultural construction” (Article 63). It was thus illegal to develop the rural collective land directly through land transfer, leading to a widening conflict between villagers and local government (Liu et al., 2013). In 2004, the government further issued an Article to allow for land circulation between rural and urban areas in the *Constitution of Amendments to the Constitution*. According to the Article, ‘the state may, for the public interest, expropriate or take over land for public use, and pay compensation in accordance with the law’. While this policy helps revitalize the rural construction land and alleviate the short supply of urban construction land, the major legal approach to transacting rural land to urban construction land in the market⁵ is to transfer the land property right from collectively-owned to state-owned through expropriation (Ho and Lin, 2003). In the process of land expropriation and acquisition, local government often plays a dominant role in determining the amount of land transaction (the scale of the land acquisition) and the price (the compensation level to villagers), although rural land is owned by the collectives (Ding and Lichtenberg, 2011). This tension often results in cohesive communicative relations among different stakeholders, including villagers using the land, rural collectives owning the land, the

⁵ Next to the conversion of rural land for urban uses, Yang (2018) found that it has also been converted for mining uses. But the grassroots do not welcome formal land acquisition procedures, the conversion of rural land to mining use was achieved directly through a land lease from farmers to mining companies. This direct land lease, however, conflicts with the state's regulations on land acquisition, but strict formal land acquisition rules are not conducive to the land development benefits of local authorities and miners, and farmers benefit from land appreciation.

government expropriating the land, and the other actors desiring to acquire the land (e.g., property developers).

Moreover, these national policies and their implementation processes had compounded the tensions and relational ties among stakeholders. For example, the local government was the policymaker as well as a stakeholder in the land-expropriation process, having a dominant role in land acquisition. By contrast, the farmer was a vulnerable group, who passively accepted the land acquisition by the local government, always playing a peripheral role in decision making without much information or power (Feng, 2006). Although the right for land development belonged to rural collectives, it was often deprived and controlled by the authorities. If a rural collective wanted to develop a parcel of land, it needed approval from the authorities first to transfer rural land to the state-owned construction land by expropriation before the entry into a transaction market. In other words, rural collectives or farmers could not legally sell their lands directly to developers; such a transaction right was deprived by local government (Xu et al., 2009). Also, the government-led land acquisition was difficult to balance the interests of stakeholders, often resulting in conflicts among stakeholders due to an uneven revenue redistribution.

Also, many studies have investigated the issues arising from the implementation process of the land expropriation policy, based on a stakeholder perspective (So, 2007; Ding, 2007; Hui and Bao, 2013; Huang, 2018). First, the policy requires paying compensation to farmers and collectives, but without articulating the amount of the compensation. Many findings reveal that the compensation received by land-losing farmers is far below the land market value, and farmers' income level or welfare even decreases after land expropriation (So, 2007; Huang, 2018). This also generates a strong linkage between local authorities and farmers/collectives, because the payment of

compensation to farmers comes from the city revenue, most of which is financed based on new land development.

The second implementation issue is the ambiguous definition of “public interests” in the amendment. Public interest is a complex and intangible concept, and even policymakers and commentators cannot fully explain the definition (Mason, 2007). This has resulted in the fact that some local governments expropriating rural construction land in the name of public interests mainly serve private developers. In this case, local governments cooperate with developers in order to maximize the fiscal revenue from land development, resulting in a benefit loss relative to farmers and rural collectives (Tang et al., 2012). This has led to illegal land acquisition, village demolition, and forced relocation of farmers, which violate the desire of farmers or public interests (Song and Yan, 2010; Tang et al., 2012).

Land expropriation not only triggers confliction among stakeholders but also spurs an informal market. The lack of urban land supply stimulates the emergence of informal/illegal markets nurturing the direct transaction of rural collective land (Ho and Lin, 2003). In fact, the use right of collective construction land in rural areas is often spontaneously traded in the form of transfer, lease, and mortgage, particularly in the fast-developing areas. The informal market for the exchange of rural construction land exists while transaction activities are not legally guaranteed and protected (Zhang, 2007).

4.2.2 The new rural land policy: COCL Marketization

Some studies have suggested skipping the process of expropriation and allowing rural collective landowners to directly participate in the market transaction process (Zhang, 2007; Qian, 2015). This can weaken the control and power of local government in the process of rural land development and help regulate the illegal use of land, build

a unified market for the transaction between urban and rural land, avoid the looting of rural land, and protect the legitimate right and interests of farmers. Since 2013, the state has introduced a new rural land policy, allowing the COCL in some pilot areas to be transferred, leased, and invested in shares. The marketization of COCL possesses the same rights and prices as the urban state-owned land (Qian, 2015).

Increasing studies have focused on the COCL marketization since 2014, including the settings of property right, pricing, resource allocation, and institutional system during marketization, as well as the advantages, disadvantages, and obstacles in the implementation procedure (He and Lu, 2016; Zhou and Liu, 2018). For example, some scholars have discussed the necessity and significance of COCL marketization. The marketization policy is deemed to clarify the property right of rural collective construction land (Guo et al., 2015), encourage the circulation and transaction of rural collective construction land (Zhang, 2007), allow the collective right of use into the market (Qu and Tian, 2011), break the monopoly of local government on land acquisition policy, equalize the developmental right of rural and urban construction land (Zheng, 2013), and provide a more fair allocation of the added value of land development back to farmers (Zhou, 2010).

Also, much research has analyzed the obstacles in establishing an equivalent, effective market for transacting urban and rural land. They generally suggest that the establishment of an urban-rural integration on the land market need to clarify the laws, regulation and institutional barriers, because the COCL's rights to be sold, leased and appraised are contrary to those requested in the current *Land Administration Law* (Wen, 2015; Lu, 2015). The COCL marketization also faces obstinate problems, such as unclear collective construction ownership, large gaps between urban and rural economic levels, vague transaction pricing, and inequitable allocation of added revenue

(Chen, 2015). Meanwhile, many studies have surveyed specific pilot areas, including a set of practical experiences found in the Chang-Zhu-Tan area (Luo et al., 2017) and the areas of Deqing, Zhejiang (Tang, 2018) and Dazu, Chongqing (Zhou and Liu, 2018).

Some recent studies have turned to the communicative relationship among stakeholders during COCL marketization (Zheng et al., 2017), although most are qualitative. For example, Fu et al. (2017) investigated how to redistribute the revenue from land development to stakeholders, including the state, the collective, and the villages. Wang et al (2017) reported that multiple stakeholders like villages, rural collective, local government, and the media are involved in the process of COCL marketization, and their mutual relational ties make the process much complicated. Some studies further detected a negotiation network feature emerged in the marketization process (Tan et al., 2018). For example, the local government empowers the rural collective to trade the collective land in the market and develops local plans to direct future rural land development (Tan et al., 2018), while the rural collective negotiates with the government and villagers to determine the entry of land into market. While existing studies have demonstrated the importance of understanding the networking characteristics of key stakeholders, few have quantified such a communicative network in marketization.

4.2.3 The analytical approach: from stakeholder analysis to social network analysis

Stakeholder analysis (SA) is widely used to identify the roles of different stakeholders in rural land studies (Ricart and Clarimont, 2016; Pérez-Soba et al., 2018; Trædal and Vedeld, 2018). SA often has two steps. First is to identify the stakeholders by using, for example, the score-based approach (Mitchell et al., 1997) while the second step is to measure the stakeholder's position by applying a stakeholder-by-stakeholder bidirectional matrix (Frooman, 1999). The SA approach often relies on subjective

assessments based on questionnaires and semi-structured interviews, along with qualitative narratives of stakeholders. Many rural SA studies suggest that the involvement of various stakeholders in the decision making of rural development is important for successful policy implementation because it could promote information sharing and communication, avoid land-use conflicts, and enhance stakeholders' mutual understanding (Soliva et al., 2008; Phillipson et al., 2012).

While SA is commonly used to articulate the attributes and importance of each stakeholder or the ego-centric network of specific stakeholders, it is difficult to investigate the entire network features (Prell et al., 2009). In contrast, social network analysis (SNA) enables us to clarify the network structure of the relationship among stakeholders (Holland, 2007; Zurbrügg et al., 2014). SNA has been widely used to derive a quantified and graphical representation of social relations, measure relational patterns and structural features, and identify the ability and control of stakeholders that promote or hinder public governance and information transmission (Bodin and Crona, 2009; Weiss et al., 2012). The features of the marketization network are closely associated with the quality and efficiency of the marketization process.

Especially, rural land development in China is complicated and involves a variety of stakeholders. SNA can visualize complex patterns of relationships among actors and their ties in relation to land development (Barry and Asiedu, 2017). Also, SNA systematically provides a set of tools for measuring and interpreting relationship patterns among actors (Wasserman and Faust, 1994; Scott, 2013; Prell and Bodin, 2011). Many studies relying on SNA detect that farmers obtain support from network resources (Peng et al., 2014) by disseminating knowledge (Becattini et al., 2014) and carrying out economic activities (Ma and Yang, 2011) in the network. In addition, other stakeholders in the network can help the actor to avoid risks and gain trust among actors

(Kim and Mauborgne, 2003). Thus, SNA is an important and effective approach to studying rural land issues like COCL marketization. However, less research has developed a SNA approach to investigating the roles and positions of stakeholders in the marketization process.

4.3 Research Area, Data and Methodology

4.3.1 A case study of the Langfa Area in Beijing

This study focuses on the Langfa area in the Huangcun Town, Daxing District of Beijing. Langfa is a rural area at the urban fringe of Beijing (Figure 4.1). There are four levels of administrative divisions in China, from province, prefecture city, county/district to township. In general, a prefecture city is comprised of a number of counties/districts, each of which contains several towns (Liu and Raine, 2016). The district used in this article represents the area of the same administrative level as a county. Under administrative hierarchies, the city government has jurisdiction over the county/district authorities, which govern their subsidiary township agencies.

In March 2016, the district government authorized Langfa to perform a pilot project for COCL marketization. The project has several lots of COCL to the north of the fifth-ring road of Beijing, close to the Daxing International Airport of Beijing. The land was used as an industrial compound and a logistics park, involving 735 enterprises and an area of 6.2 million km². Based on the Regulatory Plan of Collective Industrial Land in the Langfa Area (2015-2020), 655 hectares of buildings in the pilot area have been demolished into vacant land, ready for marketization.

The Daxing District takes the lead in proposing a mode of “township-level departmental coordination” for COCL marketization. In other words, the marketization takes a township as the basic unit of land transaction, and village collectives voluntarily entrust and authorize the township-level land joint management company for the land

transaction. The company is independent to negotiate with the tendering companies under the guidance of the township government. This mode is expected to better encourage the communication between villages within the same township, reduce the conflict between villages when negotiating, and bring more coordinated development.

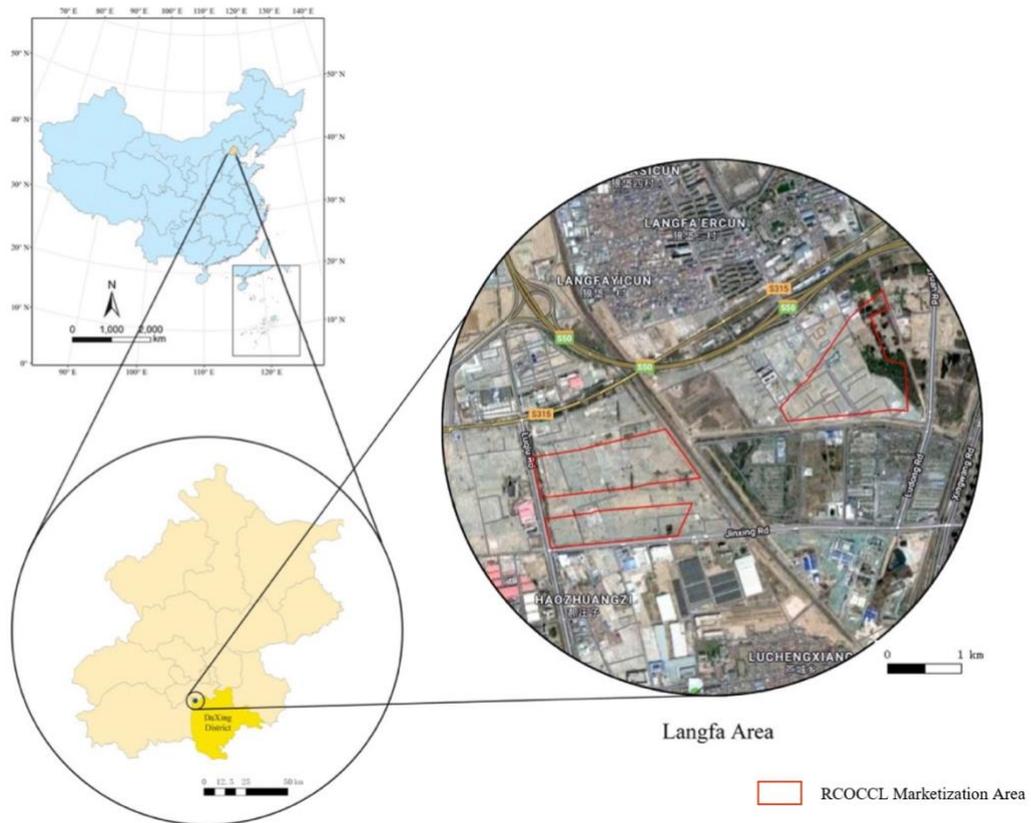


Figure 4.1. Location of the Langfa area of Beijing, China.

4.3.2 Data from semi-structured interviews

We applied semi-structured interviews and snowball sampling technique (Doreian and Woodard, 1992) to articulate the actors and their relational ties in the process of COCL marketization, including those individuals and organizations involved in land use planning, regulation, transfer, and benefit distribution. The survey was conducted from January to July 2018 and investigated four key stakeholder groups. Group 1

includes all district-level departments related to marketization. Group 2 represents township-level organizations, including the Township Authority and the Land Joint Management Company, who are primary implementers and promoters of marketization. Group 3 is comprised of rural land property owners, including village committees, village representatives, and regular villagers. Group 4 is the media institution, responsible for reporting news of marketization.

Concretely, the survey consisted of two rounds of semi-structured interviews. The first round started from an interview with 2-3 key staffs of two organizations in each of the four groups. We used the following questions to identify key stakeholders and the communicative network in the process of COCL marketization:

- 1) "Have you communicated with others about the COCL marketization? Please list up to five names of the organizations or persons (according to the level of closeness)"
- 2) "How often do you communicate with them (i.e., the five stakeholders provided in the first question)? (daily, weekly, half a month, monthly, 1 to 2 times per year) "

As shown in the first question, a snowball approach was used to create new nominated actors, until the nominees repeated mostly. The second question was used to identify the communicative frequency of corresponding organizations in the marketization process. The survey finally interviewed 76 staffs or villagers and identified 47 actor/organization nominees who were at least mentioned by two interviewees.

The second round of interviews was adopted to further evaluate the roles and positions of actors in the communicative network, in terms of interviewing the key staffs/villagers representing the 47 actor nominees. They include one staff

/representative in each of 28 organizations at the district, township, and village levels, and 19 villagers from four villages. The semi-structured interviews incorporated several interview approaches, including on-site visits, open forums, and telephone interviews. A set of semi-structured questions were involved in the interviews, such as (1) what roles of you or your organizations in the marketization process? (2) why did you or your organization communicate with the actors/organizations/villagers? (3) what kind of information related to the marketization process and policies do you expect to obtain from the actors or share with them? (4) which actors were helpful to meet your expectation on information acquisition or exchange? Besides, the interviews also focused on the interviewees' overall evaluation of COCL marketization and the level of their involvement, the roles and interests of individuals and organizations other than their communicative power, as well as each actor's insight on the interests of other individuals/organizations and the satisfaction of other actors.

4.3.3 Social network analysis

After identifying the actors in the communicative network, we calculated the strength of relational ties based on the frequency of communication between stakeholders. These communicative linkages often represent the actors' communicative power of information exchange and control in the network (Prell et al., 2009; dos Muchangos et al., 2017), while they do not fully reflect other powers behind the communication, like the political and administrative power. We then visualized and quantified the network features by SNA, as well as delineated important stakeholders via their networked roles and positions. Table 4.1 summarizes a set of SNA techniques used in our analysis, including centrality, structure holes measures, cohesive subgroup detection, and broker analysis. This study first encoded the social network questionnaire to form an adjacent matrix of stakeholder-to-stakeholder relational ties,

measured the marketization network based on the UCINET software (Borgatti et al., 2002), and then visualized them in the Gephi software (Schweinsberg et al., 2017).

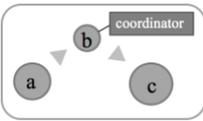
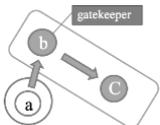
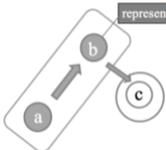
Centrality and structural hole measures are used to detect the information control and influence of actors in the communicative network in the COCL marketization process. Centrality indicators include degree, closeness, and betweenness, measuring the importance of actors in the network (Freeman, 1978; Scott, 2013). A high degree centrality often indicates that the stakeholder is at the center of the network with great influence. A high closeness centrality suggests strong independence in the transmission of information while the betweenness indicates the ability to control information and resource. Similar measures are structural holes indicators. A structural hole between two actors represents a non-redundant and effective connection, often measured by indexes such as effective size, efficiency, constraint, and hierarchy (Burt, 2009; Table 4.1). If stakeholders are in a structural hole, they have the advantage of controlling and accessing information, as they can obtain effective information from more channels. Such stakeholders are more likely to promote the flow of information in the network and facilitate the interaction among actors.

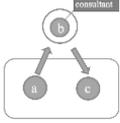
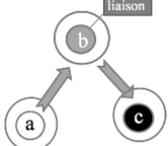
Cohesive subgroup detection aims to partition the actors in the network into several subgroups that are more closely related within the group than between different groups (Wellman and Berkowitz, 1988). There are many methods for group categorization. Here a blockmodel method was used for positional and role analysis between partitions (or blocks, White et al., 1976), based on the measure of equivalence. Also, broker analysis was adopted for detecting the role of actors who send information or resource to one but obtain resources from another (Burt, 1976; Gould and Fernandez, 1989). As shown in Table 4.1, one can define a broker as an actor in the middle position; that is, if the actor a and b , b and c contact respectively, but a and c do not connect,

then b is the broker of the network. A broker could have five types of role in a triad network, that is, coordinator, gatekeeper, representative, consultant, and liaison (Table 4.1).

Table 4.1. SNA measures.

Measures	Indicators	Equations / Diagrams	Notation
Centrality: control and influence	Degree centrality	$D(v) = deg(v)$	The number of links incident upon the node v .
	Closeness centrality	$C(v) = 1 / \sum_{u \neq v} d(u, v)$	The reciprocal of the sum of the distance of the shortest paths between the node v and all other nodes u , $d(u, v)$
	Betweenness centrality	$B(v) = \sum_{s \neq v \neq t} (\sigma_{st}(v) / \sigma_{st})$	σ_{st} is the total number of shortest paths from node s to t , and $\sigma_{st}(v)$ is the number of those paths passing through v .
Structural hole: control over	Effective size	$E(i) = \sum_j (1 - \sum_{q \neq i, j} p_{iq} m_{jq})$	p_{iq} is the proportion of node i 's linkage strength with node q ; m_{jq} is node j 's

information and resource	Constraint	$Ct(i) = (p_{iq} + \sum_q p_{iq} m_{qj})^2,$ $i \neq q \neq j$	interaction with q divided by j 's strongest relationship with anyone. Effective size is a sum of nonredundant contacts. Constraint measures the extent to which time and energy are concentrated within a single cluster.
Cohesive subgroups: grouping structure by roles and positions	Blocks	Blockmodel	Blockmodel is a method of studying the network location model and a descriptive algebraic analysis of social roles.
Broker Analysis: brokerage roles for information exchange	Coordinator		The coordinator plays the mediating role.
	Gatekeeper		The gatekeeper decides whether the information enters the next propagation channel.
	Representative		The representative handles the business on behalf of the principal a .

	Consultant		The consultant provides independent and neutral advice.
	Liaison		The liaison is responsible for information exchange, or problem coordination between different groups and individuals.

Cohesive subgroup detection aims to partition the actors in the network into several subgroups that are more closely related within the group than between different groups (Wellman and Berkowitz, 1988). There are many methods for group categorization. Here we used the blockmodel method, which is often used for positional and role analysis between partitions (or blocks, White et al., 1976) based on the measure of equivalence. Also, broker analysis is for detecting the role of actors who send information or resource to one but obtain resources from another (Burt, 1976; Gould and Fernandez, 1989). As shown in Table 4.1, one can simply define a broker as an actor in the middle position; that is, if the actor *a* and *b*, *b* and *c* contact respectively, but *a* and *c* do not connect, then *b* is the broker of the network. A broker could play five types of roles in a triad network, that is, coordinator, gatekeeper, representative, consultant, and liaison (Table 4.1).

4.4. Findings and Conclusion

4.4.1 Identifying stakeholders in the marketization process

Table 4.2 summarizes the stakeholders and their roles by four groups, including 17 district-level departments, 2 township-level organizations, 4 village committees, 5 representatives in 4 villages, 4 regular villagers, and 2 news media institutions. Their roles in the COCL marketization process are extracted from the semi-structured interviews; they are divided into four stages in the process. First is the preparation of the COCL entry permit. The township-level organizations, including the Township Authority and the Land Joint Management Company, are responsible for making the marketization plan and setting up the coordinating platform with village-level actors. The second stage is land consolidation and development, mainly led by four district-level departments – such as district-level Authority, Pilot Office, Planning and Land Resources Authority, and Development and Reform Committee – and implemented by two township-level organizations. The third is the transaction stage for putting land parcels in the land trading platform after the approval of township-level and district-level departments. This stage involves almost all actors. The fourth stage is the stage of project construction, mainly under the supervision of district-level departments.

Table 4.2. Roles of stakeholders in the marketization process.

Actors or Stakeholders (<i>Abbreviation</i>)	Roles (at the preparing, early, middle, and late stages)
Group 1: District-Level Departments	
District Authority (<i>Dist.Auth.</i>)	<ul style="list-style-type: none"> • <i>Early</i>: Approving the implementation plan of land reclamation • <i>Middle</i>: Reviewing public opinions of the marketization from certain cases and reporting the approval results to municipal department
Pilot Office (<i>Dist.Pil.</i>)	<ul style="list-style-type: none"> • <i>All</i>: It is a department specially established for the marketization, consisting of special staff at each district level, responsible for managing and promoting the marketization policy.
Planning and Land Resources Authority (<i>Dist.Plan.</i>)	<ul style="list-style-type: none"> • <i>Early</i>: Reviewing the implementation plan of land reclamation, helping the township-level land joint management company confirm the land property right, renovating the parcels, rehabilitation acceptance and municipal evaluation of planned marketization plots • <i>Middle</i>: Leading departmental joint meeting, preparing market entry documents, signing land-use

	<p>contracts, handling land registration procedures, drafting planning documents</p> <ul style="list-style-type: none"> • <i>Late</i>: Issuing real estate ownership certificate to construction units, issuing a construction project planning permit
<p>Development and Reform Committee (<i>Dist.Dev.</i>)</p>	<ul style="list-style-type: none"> • <i>Early</i>: Establishing land consolidation and development projects • <i>Middle</i>: Publishing comments in the inter-district-level joint meeting and advising and preparing the marketization documents • <i>Late</i>: Taking the lead in going through the formalities and establishing a construction project
<p>Housing and Urban-Rural Development Committee (<i>Dist.Hou.</i>)</p>	<ul style="list-style-type: none"> • <i>Middle</i>: Publishing comments in the inter-district-level joint meeting • <i>Late</i>: Guiding the implementation of the project, quality supervision, and management during the construction phase
<p>Economy and Information Committee (<i>Dist.Eco.</i>), Finance Bureau (<i>Dist.Fina.</i>), Environmental Protection Bureau (<i>Dist.Env.</i>),</p>	<ul style="list-style-type: none"> • <i>Middle</i>: Publishing comments in the inter-district-level departmental joint meeting and advising and preparing the marketization documents

<p>New Industry Promotion Service Center <i>(Dist.Ind.)</i></p>	
<p>Transportation Bureau <i>(Dist.Tran.)</i>, Agriculture Bureau <i>(Dist.Agr.)</i>, Rural Economic Management Station <i>(Dist.Rur.)</i>, Administration for Industry and Commerce <i>(Dist.Adm.)</i>, Cultural Heritage Bureau <i>(Dist.Cul.)</i></p>	<ul style="list-style-type: none"> • <i>Middle</i>: Publishing comments in the inter-district-level joint meeting
<p>District Landscaping Bureau <i>(Dist.Land.)</i>, District Civil Defense Bureau <i>(Dist.Civ.)</i></p>	<ul style="list-style-type: none"> • <i>Late</i>: Reviewing design plans, garden projects, and civil defense projects
<p>Group 2: Township-Level Organizations</p>	
<p>Township Authority <i>(Town.Auth.)</i></p>	<ul style="list-style-type: none"> • <i>Preparing</i>: Reporting implementation plans • <i>Early</i>: Reviewing the implementation plan of land reclamation and reporting it to DPA • <i>Middle</i>: Reviewing the application for the marketization projects and submitting it to DPA for review
<p>Land Joint Management Company <i>(Town.Join.)</i></p>	<ul style="list-style-type: none"> • <i>Preparing</i>: Building a platform for democratic procedures • <i>Early</i>: Land survey and delimitation, compiling the implementation plan of land reclamation,

	handling the pretrial procedures of the project and reporting it to DDC, financing support
Group 3: Village-Level Organizations or Members	
Committee of the first village (<i>Vil.1.Com.</i>), the second village (<i>Vil.2.Com.</i>), the third village (<i>Vil.3.Com.</i>), and the fourth village (<i>Vil.4.Com.</i>)	<ul style="list-style-type: none"> • <i>All</i>: Issuing joint meeting opinions and conveying the contents of the meeting to the villagers
Villager Representative of the first village(<i>Vil.1.Rep.</i>), the second village(<i>Vil.2.Rep.</i>), the third village (<i>Vil.3.Rep.</i>), and the fourth village (<i>Vil.4.Rep.</i>)	<ul style="list-style-type: none"> • <i>All</i>: Participating in regular meetings of the village committee and conveying the contents of the meeting to the villagers
Villagers of the first village (<i>Vil.1.</i>), the second village (<i>Vil.2.</i>), the third village (<i>Vil.3.</i>), and the fourth village (<i>Vil.4.</i>)	<ul style="list-style-type: none"> • <i>All</i>: Expressing opinions of village decisions to village representatives
Group 4: Media Organizations	
News Media 1(<i>News.Med.1.</i>), News Media 2(<i>News.Med.2.</i>)	<ul style="list-style-type: none"> • <i>All</i>: Reporting the marketization-related news

4.4.2 *Social network analysis of the communicative network in the marketization process*

This study adopts the SNA approach to measuring and visualizing the roles and positions of the stakeholders and the structure in the communicative network in the marketization process. For example, Figure 4.2 visualizes the distribution of the degree, closeness, and betweenness centralities of stakeholders in the communicative network, showing different types of control and demand on the information in the marketization process. Figure 4.3 shows the results of the cohesive-subgroup analysis by visualizing in a core-periphery layout and a forced-directed layout, respectively. Blockmodel is adopted to categorize the stakeholders in the marketization network into four cohesive subgroups based on their relational ties. The blockmodel analysis detects a core-periphery structure in the network. Here, the core and semi-core groups consist of the township-level organizations and district-level departments while the semi-periphery and periphery groups comprise the village committees, representatives and regular villagers. Additionally, Table 4.3 depicts top-six stakeholders with at least 50 brokerage roles within or between the four groups detected by previous blockmodel analysis, including the Township Authority, the District Pilot Office, the District Planning and Land Resources Authority, the District Authority, the Township Land Joint Management Company, and the village committee in the fourth village. A large number of brokerage roles demonstrates the stakeholder's high influence and enthusiasm for promoting COCL marketization. Relying on these analytical and graphical findings from SNA, this section investigates and extracts the roles of key actors in the communicative network during the COCL marketization process.

2.4.2.1 Roles of township-level organizations in the communicative network

SNA findings suggest that the Township Authority is at a dominant and leadership position in the communicative network during the process of COCL marketization and has close ties with several key district-level departments. It has a very large influence

on information transmission and resource control related to marketization. According to centrality measures (Figure 4.2), two township-level organizations have the highest degree centralities (with both indegree and outdegrees above 60), implying that they play top influential roles in communicating and performing the marketization policy. Their degrees are even higher than those of all district-level departments, although the township is lower than the district level in Chinese administrative divisions. Similarly, the Township Authority also ranks top in the measures of closeness and betweenness centralities. It has the highest outcloseness (0.613), incloseness (0.639), and betweenness(771) in the communicative network, significantly higher than those of the second-ranked stakeholder. These findings suggest that the Township Authority locates at a dominant position and less depends on other stakeholders for information acquisition, communication, and sharing in the marketization process.

The structural hole analysis further reveals that the two township-level organizations have the largest number of structural holes (1036 and 319) with the largest effective size (30 and 17) while their constraints on network flows are both small (0.15 and 0.26) (Figure 4.3b). These suggest that the two organizations are at a core position for controlling information and easily obtaining effective information from more channels. This finding is supported by cohesive subgroup detection (Figure 4.3a). Based on the clustering analysis, the two township-level organizations, 11 district-level departments and two news media institutions are categorized in the first subgroup, that is, playing a core role. The core subgroup significantly has the highest average strength of linkage with other subgroups, demonstrating the dominant position. Moreover, the broker analysis finds that both the Township Authority and Land Joint Management Company act as multiple roles of gatekeeper, representative and liaison, suggesting that they are particularly important brokers in the communicative network, particularly for

the district-to-village communication (Table 4.3). They also have a strong ability to transmit information within the core subgroup and between the core and other subgroups.

These SNA results may be interpreted by the roles of the township government in China, which serves for coordinating administrative and daily affairs of villages within the township's jurisdiction. According to semi-structured interviews, in the process of COCL marketization, the Township Authority is designated to resolve the village-level problems and conflict, such as land use and industrial development, under the township-level planning. Many existing studies have found the leading role of local government in China's land development (Xu et al., 2009; Tang et al., 2012; Qian, 2015), but paid less attention to the township-level organizations. Also, the Township Land Joint Management Company is a market-oriented organization, which is at the core of the marketization network and has a strong ability for promotion. This may relate to its important operating duty such as building demolition, land development, and land revenue distribution. Based on the SNA analysis, the Land Joint Management Company is rarely controlled by other stakeholders when delivering information and instead, often controls over other actors when acquiring information. It has less contact with the district-level departments, except at the pre-examination stage when the projects developed by the Company need to be submitted to the District Development and Reform Committee for approval.

2.4.2.2. Roles of district-level departments in the communicative network

The district-level departments are at the core or semi-core position in the communicative network during marketization. In contrast to township-level organizations, the district-level departments have weaker control over communication and resources, although having higher enthusiasm to spread information and attract

attention. They also have weaker linkages with village-level actors while their marketization-related communication with villagers often needs to transmit through township-level actors. As shown in Figure 4.2, the degree centralities of three district-level departments (i.e., District Authority, Pilot Office, and Planning and Land Resources Authority) are all above 35 and rank top, right after the two township-level departments. Also, it appears that the district-level departments have more opportunities to obtain information because their incloseness centralities are between 0.451 and 0.523. Besides, the betweenness centralities of the District Authority, Pilot Office and Planning and Land Resources Authority rank top, playing key mediation roles, whereas the values of betweennesses of nine other district-level departments are trivial.

Three district-level departments (i.e., Pilot Office, District Authority, Planning and Land Resources Authority) play an important role in establishing connections between groups, because they have a large number of structural holes (Figure 4.3b). Conversely, two actors of the District Landscaping Bureau, District Civil Defense Bureau have no structural hole, implying that these stakeholders rarely have information superiority and control advantage. This is probably because the COCL marketization in the Langfa area is at the stage of the land transaction while the two actors are more associated with the next stages of development and construction, thus less communicating with other actors at the current stage.

Cohesive subgroup analysis detects that 11 district-level departments are clusterized into the core group while the remaining 5 district-level departments are in the semi-core group, which is densely connected with the core group (Figure 4.3). The semi-core departments are particularly well-connected with the District Authority, Pilot office and Planning and Land Resources Authority in the core group while less

communicated with other actors in the core group, like the township-level departments and news media. Also, it is worth noting that the semi-core group has few direct linkages with the two periphery groups, suggesting that the semi-core group mainly serves for the core district-level departments to facilitate the marketization policy.

Besides, three district-level departments (i.e., Pilot Office, District Authority, Planning and Land Resources Authority) mainly play broker roles as coordinator, gatekeeper, and representative (Table 4.3). Compared to township-level organizations, the district-level departments pay more attention to the information acquisition and transmission among district-level actors and have little contact with village-level actors in the two periphery groups. Also, in the semi-core group, only the District Agriculture Bureau plays the roles of gatekeeper and consultant. This denotes that the semi-core group's control for information and resource in the communicative network is relatively weak and independent.

2.4.2.3. Roles of Village-Level Organizations/Members in the communicative network

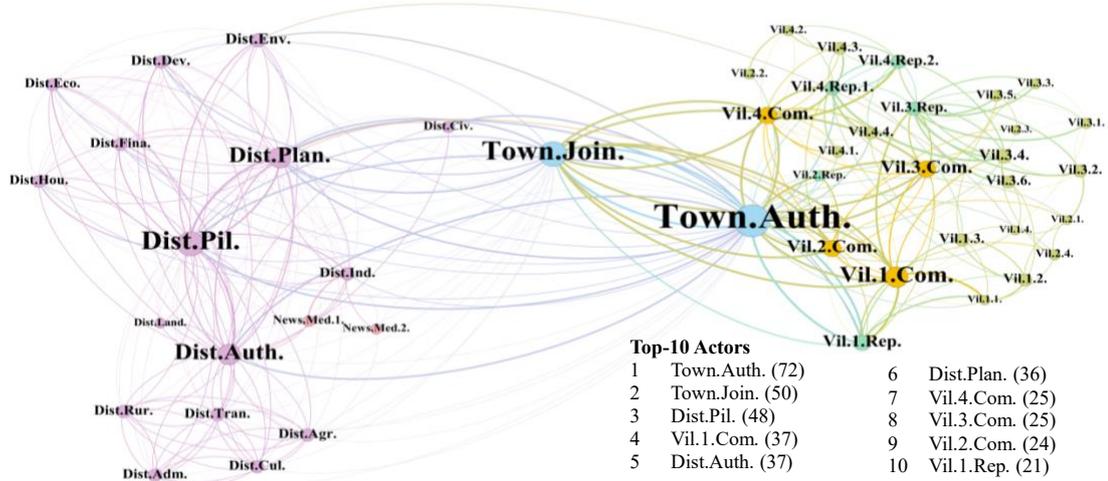
The roles of different villages in the communicative network are different. For example, the first and second villages mainly rely on two key and prestigious villagers to obtain information from other stakeholders outside the villages. The information transmission in the third village is generally fast and extensive, with the representative as an intermediary, who receives the information from the committees and then passes them to other villagers. In the fourth village, it is interesting to find that the villagers' distrust of the committee makes them less-communicated with other stakeholders in the marketization process from the interviews.

Also, varying types of village actors play different roles in the communicative network, although all village-level actors appear less powerful in information delivery and resource control in the communicative network than the township- and district-

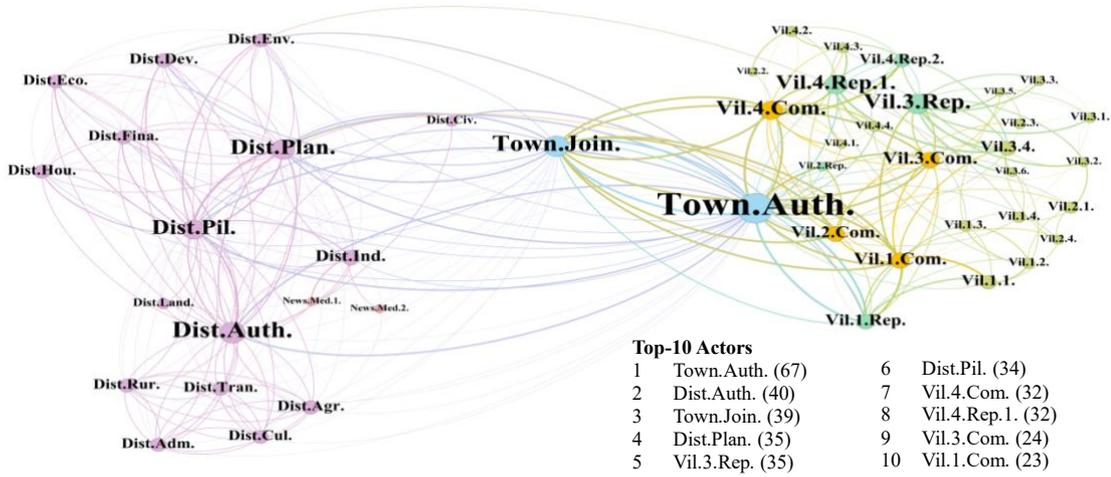
level departments. For example, village committees are often the most powerful village-level actors in relation to the COCL marketization. Committee members generally have higher centralities than village representatives and regular villagers (Figure 4.2), because they possess more information on marketization than other villagers. According to the blockmodel analysis and the brokerage analysis (Figure 4.3 and Table 4.3), the village committee is not at the core position in the network, although it is an important broker for information transmission and exchange within and between villages. Interviews also demonstrate that the committee members of the fourth and the first villages in the semi-periphery group play a more prominent role as coordinator and gatekeeper, responsible for information exchange within their subgroups and external information collection.

By contrast, village representatives often play a role of the bridge between the village committee and regular villagers for communicating the new land policy, although some inactive representatives may fail to transmit the villagers' interests to the overall network. For example, the centrality analysis shows that the degree centralities of the representatives of three villages are all around 20 while that of the second village is much lower (4), representing that the representative in the second village is inactive for transmitting the marketization information (Figure 4.2). This may ascribe to the fact that the committee in the second village sends little information about the COCL marketization to the village representative. While all representatives are in the periphery groups, the representatives of the third and fourth villages undertake important tasks for external communication between groups (Figure 4.3). The representative of the third village is mainly responsible for communication within its group while the representative in the fourth village is more for passing the information to the other groups.

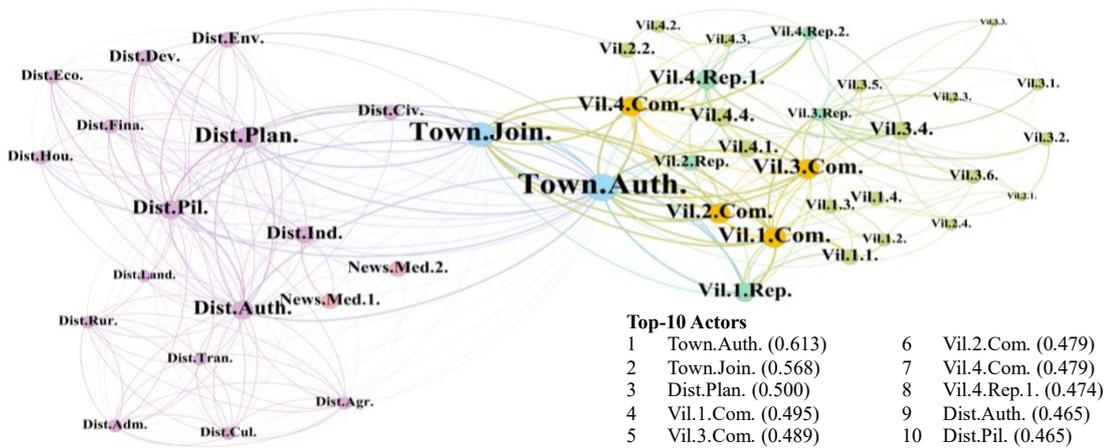
In addition, regular villagers are marginalized and at weak positions in the communicative network. The peripheral position makes most villagers difficult to convey and obtain information of marketization, with their interest appeals inadequately addressed and protected. Most villagers have relatively lower degrees, distributed at the periphery of the network (Figure 4.2 and Figure 4.3), implying a limited influence on policy promotion. For example, according to Figure 4.2a and 4.2b, four villagers with the lowest degree centrality are almost isolated in the information exchange of marketization. Some villagers have zero betweenness (Figure 4.2e), playing a trivial role in connecting the marketization network. They only passively received information from village committees or representatives, having little impact on policy communication in the marketization process. Based on the interviews, these four villagers generally have a biased understanding of the COCL marketization and regard that they have no much communicative power in the decision-making process.



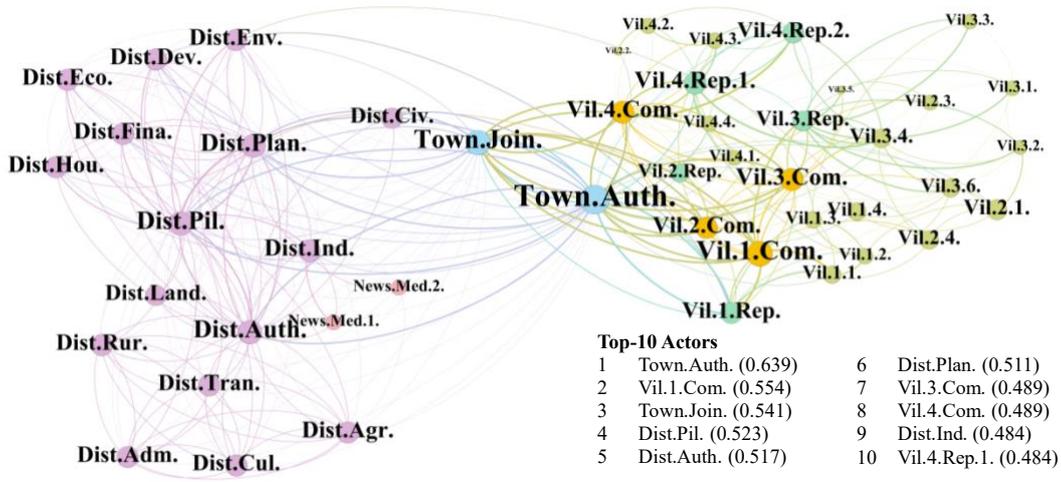
(a) Outdegree



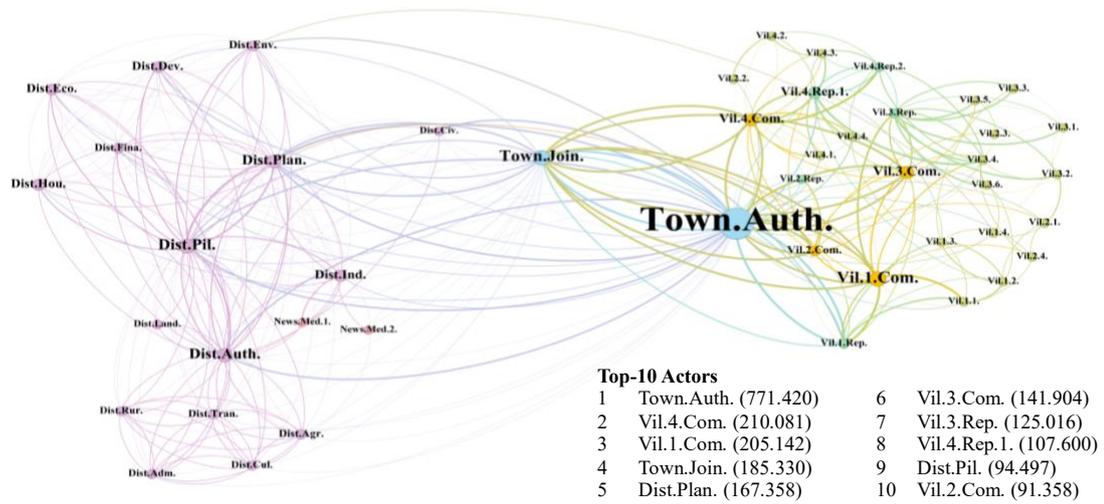
(b) Indegree



(c) Outcloseness



(d) Incloseness



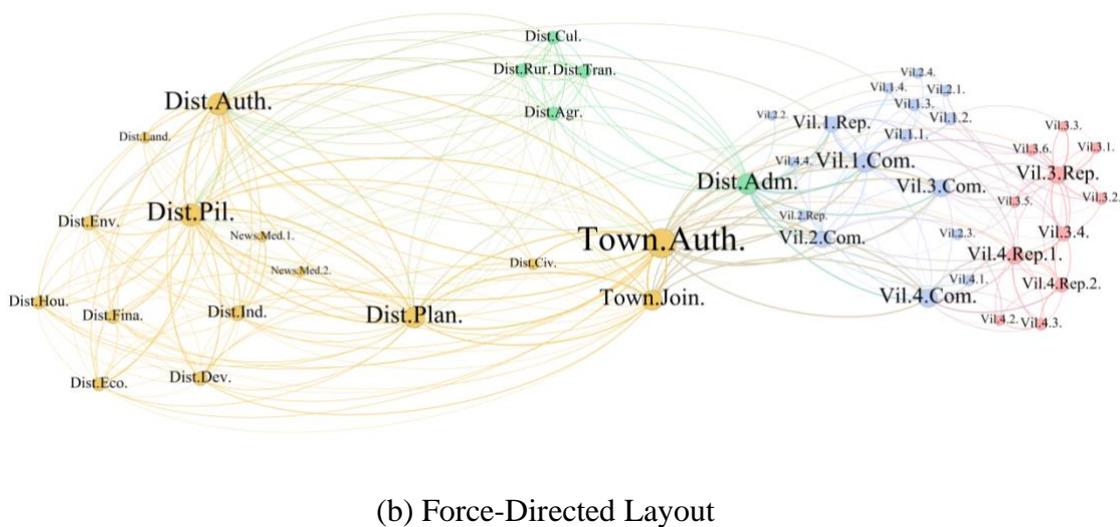
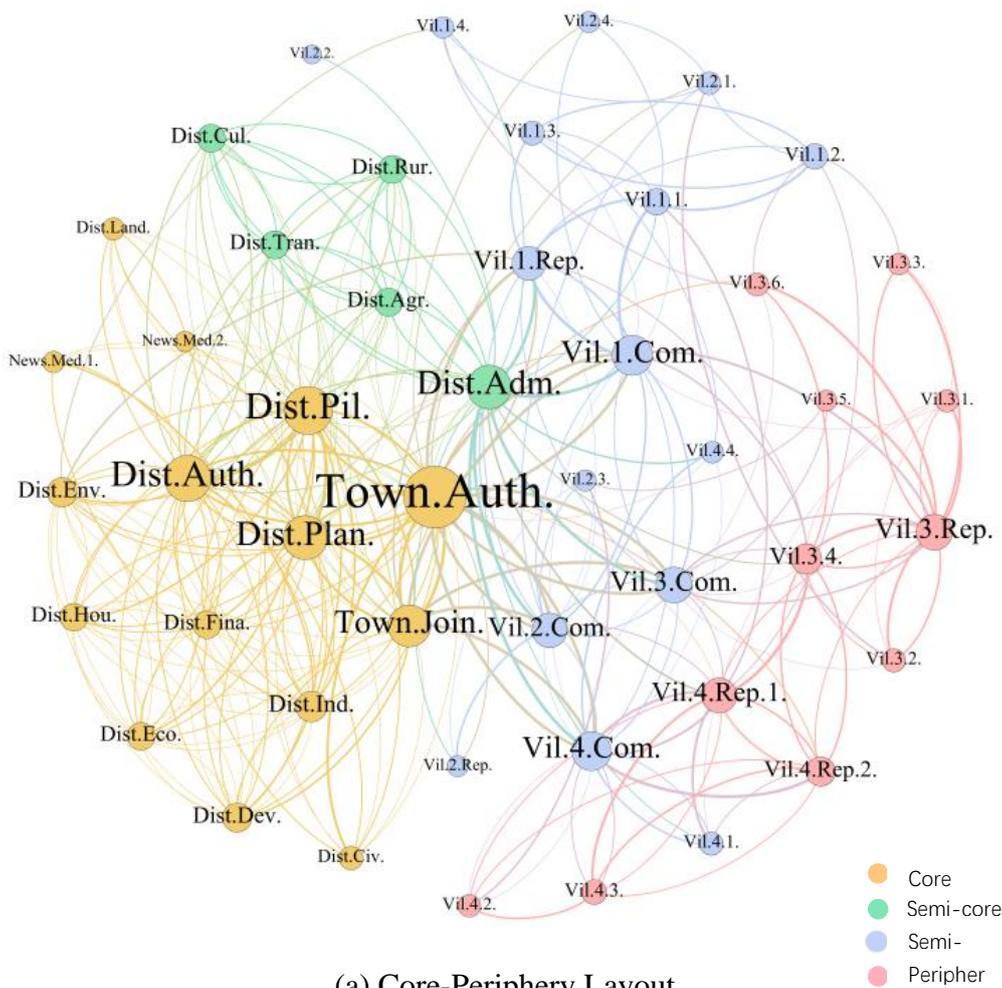
(e) Betweenness

Legend: Types of Actors

- District-Level Authorities
- Village Committees
- Town-Level Organizations
- Villager Representatives
- Villagers
- Media Organizations

(Note: Full names of the abbreviations refer to the first column of Table 4.2)

Figure 4.2. The COCL marketization network and centrality measures.



((Note: Full names of the abbreviations refer to the first column of Table 4.2)

Figure 4.3. Cohesive subgroups in the COCL marketization network.

Table 4.3. Number of brokerage roles of important stakeholders in the four subgroups.

District Authority					District Pilot Office					Planning and Land Resources Authority								
	1	2	3	4		1	2	3	4		1	2	3	4				
1	48	45	0	0	1	58	49	0	0	1	39	40	10	0				
2	50	0	0	0		2	50	3	0		0	2	50	0	5	0		
3	0	0	0	0			3	0	0		0		0	3	0	0	0	0
4	0	0	0	0				4	0		0		0		0	4	0	0
Township Authority					Township Land Joint Management Company								Committee of the 4th Village					
	1	2	3	4		1			2	3	4	1			2		3	4
1	30	19	58	24	1	3	5		19	0	1	0	0	4	5			
2	0	0	0	0		2	0	0	0	0		2	0	0	0	0		
3	126	55	59	27			3	66	30	7			0	3	1	0	14	11
4	24	10	14	2				4	0	0			0		0	4	7	0

4.5 Conclusion and Discussion

This study measures and visualizes the roles of stakeholders in the communicative network in the COCL marketization process in the Langfa area of Beijing, a pilot area for performing the newly rural land policy. Analytical approaches rely on semi-structured interviews and social network analysis. Results detect four groups of actors in the communicative network, including district-level departments, township-level organizations, village-level actors, and news media institutions. Among them, the township-level organizations, such as the Township Authority and the Land Joint Management Company, are at a core position in the network with a dominant communitive power for information acquirement, control, delivery and exchange. District-level departments rather play semi-core roles in the communicative network,

with relatively weak links with the village-level actors; and the marketization-related communication between district-level departments and villages often need a mediation of township-level actors. In addition, village committees are most at a semi-peripheral position, although they are an important broker for information transmission and control within and between villages. Active village representatives have a role as a bridge between the committees and regular villagers, while villagers are often marginalized in the communicative network. This may make some villagers difficult to convey and obtain information of marketization, with their interest appeals inadequately addressed and protected.

These findings provide policy implications for promoting COCL marketization in China. For example, while regular villagers are the collective property owners of the COCL that may silently affect the successful implementation of land acquisition and transaction, they have marginalized roles in the communicative network as found in this study. Lack of policy information and communication may result in more conflicts, rather than collaborations, in the marketization process, hindering the policy implementation. Given the networked patterns, the township-level organizations and the village committees are the two key mediators that could involve villagers more into the communicative network. It is also important for these mediators to protect the interests and legal rights of village-level landowners by acknowledging themselves at a marginalized position. They can reinforce the communicative network by building a unified platform for communication, implementing democratic procedures for making policy decisions, and informing the public implementation plans in the process of COCL marketization. This also can be improved through the way of encouraging the village committee to timely announce the information of the marketization process and

to collect effective feedback from the rural public to the township and district governments.

This study also demonstrates the significance and importance of adopting the SNA approach to scrutinize the networked features among actors of the communicative network during the COCL marketization process. There are several merits of SNA in such land development studies. First, the SNA approach can quantify the roles and positions of varying actors based on their relational and networked patterns. This network perspective differs from the stakeholder analysis, which focuses more on conflicts between actors, instead of their relational ties. Second, SNA provides plentiful and useful measures for articulating the roles of actors in the communicative network, including centrality metrics, structural hole detection, cohesive-subgroup analysis, and broker analysis. Third, SNA can visualize the complex relationship between actors and their communicative power in the process of COCL marketization.

Several questions deserve further investigations. First, considering different contexts of natural, socioeconomic, cultural, and institutional environments of the pilot areas, the case of the Langfa area has a certain particularity. Future work can be extended to compare the marketization networks in various pilot areas for detecting general stakeholder conflicts and connections behind the marketization process. Second, the identification of stakeholders needs to be more complete, and more diverse networks can be formulated and assessed based on different types of relational ties, for example, by distinguishing the confliction and cooperation networks among stakeholders in different stages of COCL marketization. Fourth, while this study focuses on the communicative network among varying actors, more studies are needed to investigate embedded powers and roles reflected in other networks, such as political and material networks, in the marketization process, for better understanding how the

communicative linkages and roles are formulated and affected by the socioeconomic and political factors. This also needs to incorporate more qualitative in-depth surveys to disentangle the underlying factors, norms and dynamics in the COCL marketization process. Lastly, the impact of the network features and structures, as well as nodal characteristics on the efficiency and success of COCL marketization, need to be further evaluated and estimated. It is necessary to analyze and compare the marketization mechanisms, evaluate the policy implication, and propose more effective development models for rural land-use governance.

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CHAPTER

5

Chapter 5. Collective Action Dilemmas of Sustainable Natural Resource Management: A Case Study on Land Marketization in Rural China*

**This chapter is based on a submitted paper as follows: Zhou, L., Zhou, Y., de Vries, W. T., Liu, Z., & Sun, H. (2024). Collective action dilemmas of sustainable natural resource management: A case study on land marketization in rural China. Journal of Cleaner Production, 439, 140872.*

Abstract

Sustainable natural resource management encompasses not only technical aspects but also the capacity and inclination for collective action. Using semi-structured interview data and social network analysis, this paper assesses the characteristics of three elements of social capital (norms, communication networks, and trustworthiness) and their effects on collective action, in the context of the marketization of rural collectively-owned operating construction land (COCL) in Dingluan Town, Henan Province, China. The results reveal that villagers possess a superficial understanding of compensation schemes at the normative-level analysis, impeding effective collective decision-making. Communication network analysis exposes strong ties that may impede collective action if only information flows within villages. In contrast, weak ties serve as vital bridges promoting marketization. Additionally, we observe that

groups with strong ties rely more on key actors for accurate calls to action, underscoring the importance of trustworthiness. More importantly, the results point to three dilemmas regarding land marketization in rural China: cognitive bias of norms, challenges in expressing stakeholders' demands, and crisis of trust among key actors. We further highlight trust as a potent means of breakthrough to address these dilemmas rooted in normative, communicative, and trust-related aspects that present formidable challenges to collective action. These results provide important insights for trust-building strategies for researchers and policy promoters to solve the collective action dilemma in environmental management.

Keywords

Collective action dilemma; social capital; trust; sustainable environmental management; land marketization

Chapter 5. Collective Action Dilemmas of Sustainable Natural Resource Management: A Case Study on Land Marketization in Rural China

5.1 Introduction

The exploration of how to use land resources is one of the crucial aspects of natural resource management (Arifwidodo and Chandrasiri, 2013). An appropriate land marketization process can improve the efficiency of land resource utilization and enhance the sustainability of natural resource management (Wang et al., 2021). A large part of the studies of land marketization are about the protection of land property rights (Borras & Franco, 2013; Hertel, 2011; Messerli, Heinemann, Giger, Breu, & Schonweger, 2013; Deng et al., 2022). Additionally, the implementation for such studies usually includes the estimation and inspection of land prices (Alola & Uzuner, 2020; Derdouri & Murayama, 2020; J. F. Zhang et al., 2020) and finding the relationships between different stakeholders (Bukari & Kuusaana, 2018; Reyes-Bueno et al., 2016; Zadorozhna, 2020; Zhou & de Vries, 2022). Collectively-owned land resource could not be traded legally on the land market in China until 2015. Up until this point, only after land expropriation, which transformed collectively-owned land into state-owned land, could it be sold on the land market. Although the land expropriation policy has promoted urbanization and industrialization, it has also generated some barriers to sustainable natural resource management, such as the disproportionate conversion of agricultural land, the over-expansion of urban space, the loss of farmland, and significant spatial and economic inequalities between urban and

rural regions(Sargeson, 2013b; Shan et al., 2017). In 2015, 33 pilot counties and districts were selected to reform the institutions of land marketization. The reform measures included the permission for the marketization of rural collectively-owned operating construction land (COCL)⁶, allowing COCL to enter the market on an equal footing with state-owned construction land, with the same rights and prices, on the condition that it complies with spatial planning and land-use regulation. The market entry of COCL refers that the people with collectively owned land ownership entitle those intending to develop the land to the land-use rights within limited years by transferring, leasing the land-use rights, or contributing the rights as an investment. There are three strict conditions: the nature of public land ownership cannot change, there is a clear red line concerning particular farmlands, and the interventions should not harm in any way the interests of farmers.⁷" The COCL marketization has become a fundamental element of natural resource management reform in China.

With COCL marketization, scholars have researched four significant issues: "Who should bring the land resource to the market, what type of land resource should be traded, how to share the profits of the trade, and how should COCL be traded." Lu & Chen (2019) analyze the realization of land property rights and interests, the distribution of benefits, the selection of trading modes, and the demand for land development rights during marketization in pilot areas. In terms of " who should bring the land resource to

⁶ In January 2015, the General Office of the Central Committee of the Communist Party of China and the General Office of the State Council issue the *Opinions on the Pilot Program on the Reform of the Systems of Rural Land Acquisition, Entry of Rural Collectively-Owned Commercial Construction Land into the Market, and Housing Land*, which marked the start of the reform of the rural land system

⁷ In 2015, based on the policies made by the Central Government, Changyuan County issued "The Management Policy of the COCL Marketization in Changyuan County

the market", existing literature has summarized five types of implementation subjects of land resources entering the market: collective economic organizations, villagers' committees(Chen, Zhuo, Li, & Xu, 2021), authorized institutions entrusted by farmers collectives⁸, farmers collectives⁹, and institutions jointly established by several collective economic organizations (Zhou, Zhang, Fang, Sun, & Lin, 2020). In terms of "what type of land resource should be traded", the government requires that only COCL complying with spatial planning and natural resource regulation can be transacted (Zhang, Chen, Zhang, & Yang, 2021), but whether homestead, which is also one of the types of rural construction land along with COCL, can be transacted is still open to discussion (So, 2007; Wu, Mo, Peng, & Skitmore, 2018). To solve the problem of "how to share the benefits of the trade", or in other words, how to organize the revenue distribution, So et al. (2007) argue that the total value of the land resource entering the market is not effectively reflected and that the cost accounting mechanism is not satisfactory (Huang, 2018; So, 2007). In terms of " how should COCL be traded ", studies mainly compare the differences among three market entry routes, namely entry on the spot, entry after adjustment, and entry after land consolidation as well as the differences between two main modes: the government-led mode and the self-organized mode of farmer collectives(Wang, 2021).

The progress of market entry of COCL varies among collectives, and in some cases, the market entry process has yet to be improved or even stalled (Li et al., 2023). Since

⁸ In 2017, "The Regulations of the COCL Marketization in Pidu" was issued and stipulated that the authorized institutions entrusted by farmers' collectives can be the marketization subjects

⁹ In 2019, "The Management Policies of Rural Economic Collectives on the Added-Value of Land in Haicheng" was issued and stipulated that the farmers' collectives can be the subjects of COCL marketization

land marketization can vitalize the land market, accelerate the flow of land elements, and promote the economy of village collectives¹⁰, the reasons why various obstacles still exist and the methods to break out of the dilemma need to be revealed. Correspondingly, the roles and functions of different level authorities in promoting land marketization also need to be figured out. Some studies have answered part of the questions. The reasons for regional differences in the market entry are varied, including differences in industrial structure, local economic conditions (Lai & Li, 2017; Wang, 2022), the standard land pricing mechanism(Yang, Dai, Qi, & Zhang, 2016), and revenue distribution(Li & Wang, 2014), etc. Among all the factors, those having positive effects on land marketization are the active attitude and enthusiasm of farmers collectives(W. J. Wang & Ye, 2020) and the limited amount of usable state-owned construction land(Qu et al., 2019), while the factors having negative effects are the narrow scope of land entering the market(Wu et al., 2018), the incompleteness of related law(Z. Zhang & Yu, 2011; C. Zhou & Chan, 2022), the confused and unreasonable revenue distribution(Li & Wang, 2014), the small size and fragmentation of some pieces of land(Zhu, 2018), and the difficult resolution to historical problems(Y. M. Huang, Xue, & Huang, 2021). As the management and service provider of the land market, the government should be mainly responsible for constructing the institutional environment, nurturing the market, managing access to the market, coordinating revenue distribution, maintaining market order, etc. The role of the government should not go beyond the objectives and bottom line of COCL reform(Liu, 2010).

¹⁰ In China, village collectives are social groups composed of rural residents in which village officials are embedded.

These studies analyze the reasons for the successful and failed market entry of COCL and the role of the government in a reasonable way, but some questions still need to be solved. Firstly, the studies still stay at the macro policy level and fail to focus on the micro subject level to analyze the causes of the barriers to land market entry (Li & Wang, 2014; Z. Zhang & Yu, 2011). Secondly, the studies lack theoretical support and the analysis of interactions between different subjects. Although the studies analyze the factors hindering the market entry process from the perspective of each participant along with case studies, they fail to explain the deeper logic of barriers from the theoretical perspective, and lack explanations of the interconnections and influences among all the participating subjects.

This paper attempts to introduce the "collective action" theory into the study of COCL marketization, which generally stems from the common interests among groups, and the existence of common interests possibly motivates collective action (E. Ostrom, 2000), but the success of collective action depends on the trust and cooperation among different individuals. The COCL marketization is a typical "collective action". Therefore, this paper applies the "collective action" theory, focuses on the logic of collective action from the perspective of trust, figures out the roles and relationships among varied subjects, analyzes the mechanism of these barriers' influences, and provides targeted countermeasures to weaken the negative effects of these barriers.

Ahn and Ostrom (Ahn and Ostrom, 2002) brought up the solution to collective action dilemma and it requires individual members to overcome selfishness in order to achieve mutual benefits, with trust playing a pivotal role in facilitating effective

connections between individual and collective interests. Trust, along with trustworthiness, networks, and norms, is identified as a fundamental form of social capital, essential for overcoming collective action challenges (Ostrom and Ahn, 2003a). Such social capital forms foster cooperation by enabling the flow of information, encouraging reciprocity, and facilitating coordination among group members, thereby enhancing social efficiency (Roger C Mayer et al., 1995). Trust helps to lower transaction costs, networks promote the exchange of information and the sense of collective ownership (Bourdieu, 2011b), and norms steer behaviors in favor of collective interests (Fukuyama, 1996b). These factors collectively lower the barriers to individual self-interest in pursuit of the greater good for the success of collective actions (Torsvik, 2000b). Consequently, social capital, with its emphasis on trustworthiness, networks, and norms, is pivotal in managing the intricacies and vulnerabilities of cooperative human interactions in collective pursuits (Stern and Putnam, 1993b; Zhou and de Vries, 2022a).

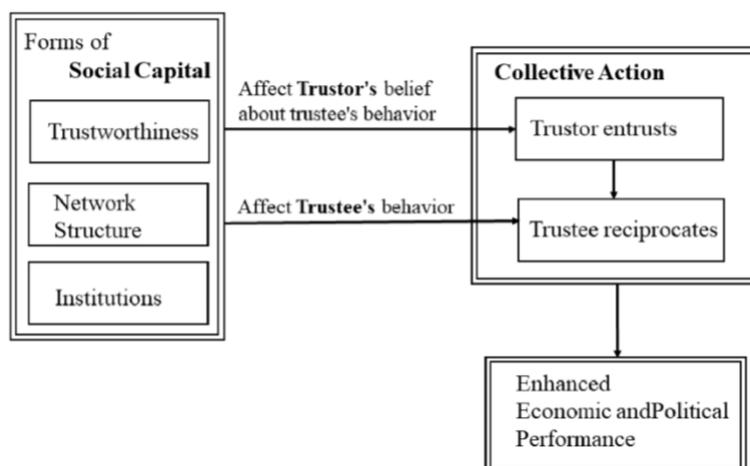


Figure 5.1. The framework of second-generation theories of collective action. (Source: Ahn & Ostrom, 2002)

An innovative aspect of this paper is its exploration of the nuanced interactions between individuals and groups within the context of COCL marketization. It scrutinizes the behavioral mechanisms of individuals within a group by integrating second-generation collective action theories with a comprehensive social network analysis (SNA). This approach highlights the pivotal role of trust as a connector between social capital and collective action efficacy. The use of semi-structured interviews to map interaction patterns among villagers further enriches our understanding of the social dynamics at play. This methodological innovation allows for a deeper examination of how individual behaviors within networks contribute to the advancement of land marketization, the development of an integrated urban-rural land transaction market, and the pursuit of sustainable natural resource management. Furthermore, the paper profoundly illustrated the intricate connections between social capital elements and environmental sustainability in the realm of rural land marketization. Central to the theme of sustainable resource management lies the capacity for collective action, which is intrinsically shaped by norms, communication networks, and trustworthiness within communities.

This paper is organized into five parts. Section 2 describes the theoretical framework from the logic of collective action. Section 3 introduces the study area, data sources, and research method. Section 4 presents major findings. Section 5 provides a number of concluding remarks and recommendations for further research.

5.2 Social capital, trust, and collective action: a conceptual framework

This study proposes a conceptual framework for COCL's collective action (Figure

5.2). The conceptual framework is based on the framework of second-generation theories of collective action, which considers trust as a crucial part of building the relationship between social capital and collective action.

In the context of the marketization of COCL, the social capital composed of trustworthiness, networks, and norms allows for efficient and effective marketization of COCL. The trustworthiness of key actors is pivotal to the development of trust among different stakeholders. As a bridge for stakeholder connections, key actors provide a clear understanding of norms, reliability, and fairness, allowing participants to reach a consensus and ensure that COCL is implemented as intended. In these circumstances, integrity, capability, and benevolence are three participants' assessment standards of key actors' trustworthiness attributes. The success of COCL marketization can be influenced in a number of ways, including whether marketization information is open and transparent, whether processes are legal and compliant, and whether follow-up guarantee services are available on a timely basis.

Networks among various stakeholders usually serve as critical ties and channels for the flow of different resources, such as information related to land marketization. The ties between stakeholders from the social network of COCL, in which social capital is embedded, and information is dispersed and circulated. A condition for trust building is to have more active stakeholders whose social networks provide more access to information about the norms and rules. Another condition that makes it more likely that stakeholders will maintain a trusting attitude is that participants are well aware of the trustworthiness of the key actors with whom they interact on a regular basis.

The term norms refer to the formal and informal rules, norms, and other enforceable prescriptions, such as regulations and guidance of land marketization, which can regulate the interactions and communications among individuals and groups. Stakeholders' initial perception of the COCL comes from the legal provisions and norms enacted for the policy, which include processes and stakeholder rights. In addition to empowering key actors, these norms may also provide them with confidence that the behavior of key actors is credible, normative, and can be bound and regulated by the norms, thereby reducing the risk of collaboration and facilitating collective action in order to achieve cooperation and consensus.

The trust existing among stakeholders, such as landowners, policy promoters, and land-use rights holders, works as a key solution to the dilemma of marketization of COCL. Collective action dilemmas in COCL lie in the mistrust of landowners (members of village collective organizations) towards policy promoters and land-use right holders, resulting in prolonged or even unimplementable policy implementation. Collective action dilemmas can be resolved through trust, which binds social capital and collective action together. It helps to dissect the complex policy environment, sort out the complex relationships between stakeholders, reach a consensus on collective action efficiently, and analyze the paths and problems of policy implementation.

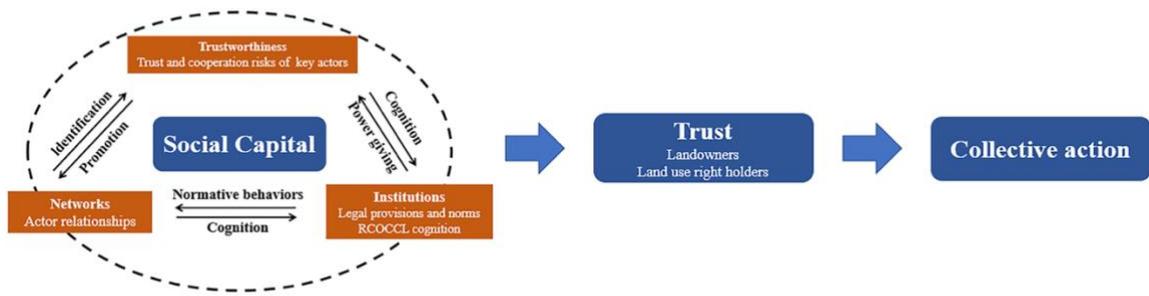


Figure 5.2. A conceptual and theoretical framework of COCL marketization.

5.3 Case Study, Data, and Method

5.3.1 Policy introduction and study area

The marketization of rural collectively-owned operating construction land (COCL) was initiated in 2015 in 33 pilot counties and districts through institutional reforms, and COCL gradually gained equal access to the market alongside state-owned construction land, enjoying identical rights and prices.

Some key stakeholders can be identified through the process of COCL marketization in China, mainly including landowners and governmental institutions. The landowners encompass villagers, Collective Economic Organizations, and Joint Stock Economic Cooperatives. In China, villagers form Collective Economic Organizations through democratic voting to collectively engage in various activities and manage local resources. In forming Joint Stock Economic Cooperatives, the villagers can be represented by them to gain access to the land market, and Joint Stock Economic Cooperatives become the subjects of market entry. Different levels of governmental institutions participate in the COCL marketization through the regulation and management of the entire process, as well as the collaboration and cooperation with

other stakeholders to ensure the success of the initiative.

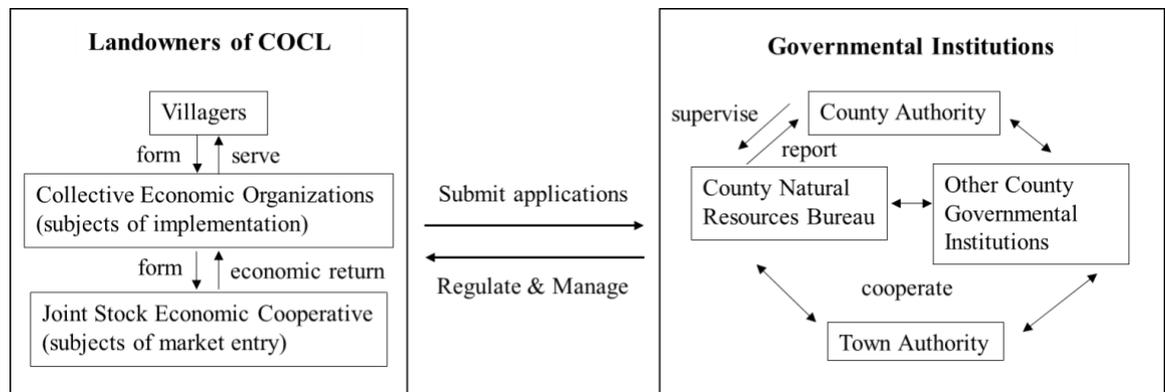


Figure 5.3. Stakeholders involved in COCL marketization.

In order to detect how collective action in the context of marketization works in practice, we opted to zoom in to a particular study area, where we expected to find manifestations of collection action. Dingluan Town is in the central region of China, and it is directly under the county-level administrative district of Changyuan County, Henan Province (Figure 5.4). As of 5 July 2021, there are 377 pieces of COCL in Changyuan County, covering 5.05 km². Dingluan Town has a high demand for land as it has a well-developed trade logistics and medical device industry, and many companies are waiting to move in.

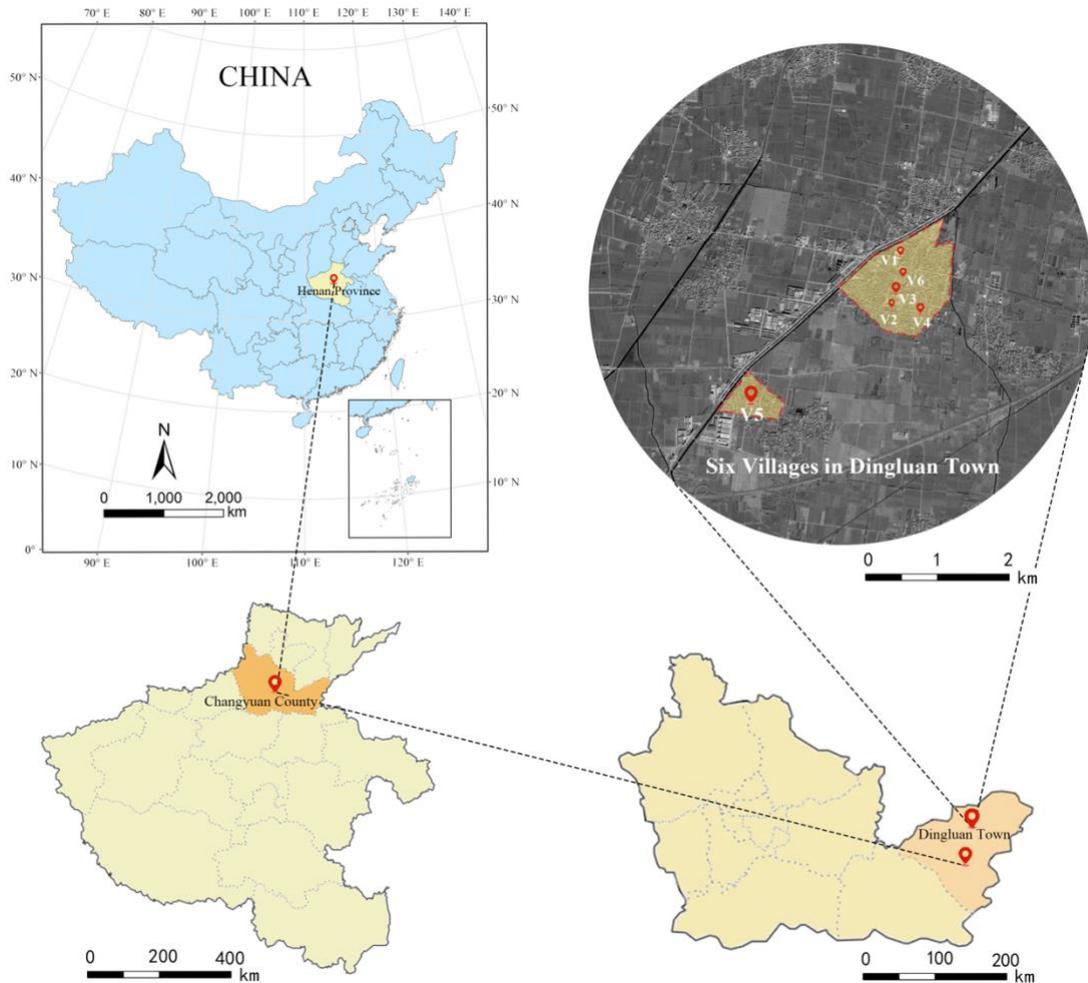


Figure 5.4. Location of the Dingluan Town of Henan Province, China.

5.3.2 Procedure and stakeholders in COCL marketization

The market entry procedure has four main stages: the preparation, the qualification examination, the transaction, and the revenue distribution, and each stage should comply with strict rules and regulations to ensure an orderly and successful market entry (Table 5.1). As part of the preparation process, the land resource must first be legally obtained and subject to spatial planning and natural resource resource controls. This ensures that the land resource conforms to the requirements and standards of the planning process, industrial development requirements, and environmental protection policies, which have sufficient conditions for further land development and utilization.

The following stage is that the land resource to be traded must have registered the rural collective land ownership through a cadastral survey, preparation of application materials, application for registration, registration examination, registration, and issuance of certificates, to ensure the land property rights are clear. During the qualification examination stage, firstly, the village collectives have to apply to Town Authority (Town.Auth) for market entry. And secondly, Town Authority (Town.Auth) makes a comprehensive assessment; County Natural Resources Bureau (Coun.Nat.) and other relevant bureaus also need to give opinions such as whether the land resource is incremental and planning conditions; then, a meeting including the farmer collectives needs to be held by the key landowners and only agreed by 2/3 of the participants can the land enter the market. In the process of transactions, County Natural Resources Bureau (Coun.Nat.) needs to report to County Authority (Coun.Auth.) for approval of the land transfer plan and then begins to transact publicly, and the transaction results need to be publicized; after that, the transferee needs to go through the procedures of land registration, land planning, construction reporting, acceptance, and housing registration. In the final stage of revenue distribution, County Finance Bureau (Coun.Fina.) will deduct the adjustment funds from the transaction benefits; secondly, after the adjustment funds are paid to rural collective economic organizations, they are required to manage, distribute, and utilize the revenue.

Table 5.1. Procedure and Policies for the marketization of COCL.

Stages of	Procedures	Rules and	Actors or
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land market entry		regulations	stakeholders <i>(Abbreviation)</i>
Preparation	<p>The basic requirements of land market entry: the planning process, industrial development requirements, and environmental protection policies</p>	<p><i>Requirements of the Land Market Entry of COCL Use Rights</i></p>	<p>Village committees in 6 villages</p>
	<p>Registration of property rights: County Natural Resources Bureau (<i>Coun.Nat.</i>) examines, registers, and issues certificates.</p>	<p><i>Opinions on the Implementation of COCL Rights Registration</i></p>	<p>County Natural Resources Bureau (<i>Coun.Nat.</i>)</p>
Qualification Review	<p>Market entry application: Village committees or collective economic organizations of township, village, or group apply to the township government for admission to the land market.</p>	<p><i>The Procedure of the Market Entry of COCL Use Rights</i></p>	<p>Village committees in 6 villages</p>
	<p>An examination from the Town Authority: <i>Town.Auth.</i> Issues review opinions on the foundation of the bases of mass</p>		<p>Town Authority (<i>Town.Auth.</i>)</p>

	<p>and cadre, the stability of the review from the mass, sources of property rights, and other comprehensive assessments.</p>		
	<p>Examination from related bureaus: The <i>Coun.Nat.</i> and other relevant bureaus also need to give opinions.</p>		<p>County Natural Resources Bureau (<i>Coun.Nat.</i>)</p>
	<p>Democratic vote: <i>Coun.Nat.</i> prepares materials for democratic decision-making. Decision-making is proposed by the Township Party Committee meeting, and it is resolved and publicized by the secretary of the party branch of each administrative village and the director of the village committee meeting.</p>	<p><i>Democratic Decision-making Policies for COCL Market Entry</i></p>	<p>County Natural Resources Bureau (<i>Coun.Nat.</i>)</p>
Transaction	<p>Organizing transaction: After the <i>Coun.Nat.</i> reporting to <i>Coun.Auth.</i> for approval of the</p>	<p><i>Public Trading Workflow for COCL Market</i></p>	<p>County Natural Resources Bureau (<i>Coun.Nat.</i>);</p>

	land transfer plan, the public transactions are organized.	<i>Entry</i>	County Authority <i>(Coun.Auth.)</i>
	Certification process: transferee registers certification.	<i>Additional Solutions to Emerging Problems in the Market Entry of COCL</i>	Company (<i>Comp.</i>); Individual (<i>Indiv.</i>)
Benefits Sharing	Levy of adjustment funds collected from land added value: <i>Coun.Fina</i> and <i>Coun.Nat</i> examines the amount of the adjustment funds and the <i>Coun.Fina</i> collects the adjustment funds.	<i>Implementation Rules for the Levy and Utilization of Adjustment Funds Collected from COCL Added Value</i>	County Natural Resources Bureau <i>(Coun.Nat.)</i> ; County Finance Bureau <i>(Coun.Fina.)</i>
	Revenue distribution among collective economic organizations: distribution among township, village, and group levels.	<i>Guidance on the Revenue Distribution of COCL Market Entry</i>	Town Authority <i>(Town.Auth.)</i> ; Village committees in 6 villages; Villagers in 6 villages

Detecting manifestations of collective action is not evident. Ethnographic methods

may be employed, as well as active elicitation based on responses that are deducted or generalized. We opted for the latter due to the limited time and resources we had, as well as the explorative nature of our study (Mansbridge, 2010). Interviews were conducted in September 2021 using a convenient sampling method with non-probability sampling in Dingluan Town to select interviewees. The selection of interviewees in this paper was based on the stakeholders involved in the process of COCL marketization in Dingluan Town. Table 5.2 identifies surveyed stakeholders in COCL marketization, which was divided into policy implementers (county-level and town-level authority staff), landowners (referring to the village collective and the village committee in the village collective can exercise ownership on behalf of the whole village collective), and land-use rights holders (companies and individuals). Our analysis investigates how trust and social capital manifest and influence collective action dilemmas throughout the entire market entry process. This comprehensive approach allows us to detect and understand the nuances of stakeholder interaction and cooperation at each of the four main stages, ensuring a holistic understanding of their collective action dynamics.

Table 5.2. Stakeholders identification in COCL marketization.

Types of Actors or Stakeholders	Actors or Stakeholders in COCL Marketization
Policy	County Authority (<i>Coun.Auth.</i>)
	County Pilot office (<i>Coun.Pil.</i>)

Implementers	County Development and Reform Committee (<i>Coun.Dev.</i>)
	County Natural Resources Bureau (<i>Coun.Nat.</i>)
	County Housing and Urban-Rural Development Committee (<i>Coun.Hou.</i>)
	County Finance Bureau (<i>Coun.Fina.</i>)
	County Environmental Protection Bureau (<i>Coun.Env.</i>)
	County Landscaping Bureau (<i>Coun.Land.</i>)
	County Agriculture Committee (<i>Coun.Agr.</i>)
	Town Authority (<i>Town.Auth.</i>)
Landowners	Village committees in 6 villages: Village DingBei Committee (<i>Vil.1.Com.</i>), Village DingNan Committee (<i>Vil.2.Com.</i>), Village DingXi Committee (<i>Vil.3.Com.</i>), Village DingDong Committee (<i>Vil.4.Com.</i>), Village GuanLuXi Committee (<i>Vil.5.Com.</i>), Village NanJie Committee (<i>Vil.6.Com.</i>)
	Villagers in 6 villages: villagers in DingBei (<i>Vil.1.1.</i> , <i>Vil.1.2.</i> , <i>Vil.1.3.</i> , <i>Vil.1.4.</i> , <i>Vil.1.5.</i>), villagers in DingNan (<i>Vil.2.1.</i> , <i>Vil.2.2.</i> , <i>Vil.2.3.</i> , <i>Vil.2.4.</i> , <i>Vil.2.5.</i> , <i>Vil.2.6.</i>), villagers in DingXi (<i>Vil.3.1.</i> , <i>Vil.3.2.</i> , <i>Vil.3.3.</i> , <i>Vil.3.4.</i> , <i>Vil.3.5.</i> , <i>Vil.3.6.</i>), villager in DingDong (<i>Vil.4.1.</i> , <i>Vil.4.2.</i> , <i>Vil.4.3.</i> , <i>Vil.4.4.</i>), villager in GuanLuXi (<i>Vil.5.1.</i> , <i>Vil.5.2.</i> , <i>Vil.5.3.</i> , <i>Vil.5.4.</i> , <i>Vil.5.5.</i>), villager in NanJie (<i>Vil.6.1.</i> , <i>Vil.6.2.</i> , <i>Vil.6.3.</i> , <i>Vil.6.4.</i> , <i>Vil.6.5.</i>)

Land-use rights holders	Company (<i>Comp.</i>)
	Individual (<i>Indiv.</i>)

5.3.3 Data collection

This study focuses on analyzing three pivotal elements of social capital: norms, communication networks, and trustworthiness. Drawing on semi-structured interviews and the snowball sampling technique, our participants were identified from the list of stakeholders related to COCL marketization, as specified in Table 5.2. To elucidate the methodological intricacies, we adopted a snowball sampling approach, wherein new participants were continually nominated until frequent repetitions were observed. At the culmination of the survey, a total of 89 staff members and villagers were interviewed, resulting in the identification of 61 actor/organization nominees, with each nominee being mentioned by at least two different participants. A subsequent set of interviews involved key representatives from the nominated list: specifically, participants from 25 organizations across district, township, and village levels, 5 company and individual representatives, and 31 villagers from six distinct villages. In the sample, 34.8% of households were male-led, while 65.2% were female-led, with household heads averaging 53 years in age. Educationally, the average schooling years among the households was 9.5 years, indicating a junior high school education level for most. There was a wide range in occupation: 30.3% were unemployed, 40.4% worked in agriculture, 2.2% were self-employed, and 15.7% held local jobs. A minority of 6.7%

were employed outside their villages, and 4.5% chose not to reveal their occupation. Overall, the study featured a diverse array of villages with considerable variation in gender, age, education, and employment statuses.

These semi-structured interviews were conducted using diverse methods, including on-site visits, open forum discussions, and phone interviews. A comprehensive list of the interview questions tailored for COCL marketization stakeholders can be found in Table 5.3. The questions in this interview was designed based on the elements of collective action theory, so that one can derive the most important factor determining villagers' willingness to participate in the COCL marketization in Dingluan Town, in relation to collective action dilemmas. The variables in the interview were divided into four categories: norms, communication network, trustworthiness, and trust, with positive narratives for each question. The semi-structured interviews were instrumental in gathering data using a five-point Likert scale, ranging from 0 to 5, specifically within the 'communication network' dimension. These interviews also yielded valuable qualitative insights into norms, trustworthiness, and trust.

Norms are behavioral guidelines for policy implementers to help landowners reach a consensus on COCL marketization and improve the speed of collective action and information flow. It is difficult for landowners and policy implementers to reach a consensus when there is a lack of information equivalence, insufficient ability to interpret information, and differences in perceptions of institutional norms. Differences in perception create a climate of mistrust and adversely affect collective action. We

mainly designed the interviews to measure the cognitive level of governmental institutions and landowners regarding a series of regulations and rules, such as use right registration, use right mortgage registration, management, market access adjustment, benefit distribution, process disclosure, and trading for COCL (Table 5.3).

In a communication network, stakeholders are represented by their behavior and relationships, and by circulating social capital, information can be distributed within the network that can promote trust between stakeholders and lead to collective action. In this paper, we construct a communication network with the aim of understanding whether and how often stakeholders are connected in the market (Table 5.3). In order to determine the frequency of connections and the information flow rate among stakeholders in the network, we measured the density and distance of the network (Doreian & Woodard, 1992; Wasserman & Faust, 1994). As well, we discussed how networks influence stakeholders and groups through strong and weak ties (Prell, Hubacek, Reed, & Resources, 2009). To identify key stakeholders and map the communication network, participants were asked targeted questions. 1) "Have you engaged in discussions regarding the marketization of COCL? If so, could you name up to five individuals or organizations with whom you've interacted with on this topic, and rank them according to the closeness of your connection?" 2)"For the five stakeholders you have just mentioned, how often do you communicate with them? Please specify the frequency of your communication with them (options: daily, weekly, bi-weekly, monthly, 1–2 times per year)." Four major stakeholder groups were involved in the interviews, which are members of county authorities, town authorities, village

committees, and villagers. The average points (Likert scale) of contact frequency are always the highest when contacting the same group of people (average points: 2.86 for contact within county authorities, 4 for contact within town authorities, 2.12 within village committees).

The trustworthiness of key actors plays a significant role in whether villagers trust decisions. The village committee is a crucial actor in the village collective organization because it exercises ownership on behalf of all members at the village level and assumes responsibility for information transmission throughout the communication network. Collective action is heavily influenced by the effectiveness of information flow among key actors. This paper is to provide a basis for interviewing key actors based on the villagers' evaluations of their capability, benevolence, integrity, and other characteristics.

Trust is the core for resolving collective action dilemmas, and the three elements (norms, communication networks, and trustworthiness) are the elements upon which trust is built. It is imperative for members of various roles (county and town authority staff, village committees, villagers, and owners of land-use rights) to cooperate in the promotion of COCL marketization. As part of the interviews, it was examined whether norms, communication networks, and trustworthiness can strengthen these members' mutual trust.

Table 5.3. Questions in semi-structured interviews for the stakeholders of COCL marketization.

No.	Variables	Questions
<i>Norms 1</i>	Norms	Implementation opinions of county departments on the registration of the right to use COCL
<i>Norms 2</i>		COCL uses the rights mortgage registration method of county departments
<i>Norms 3</i>		The management of COCL of county departments
<i>Norms 4</i>		The temporary approach of county departments on COCL adjustment to the land market
<i>Norms 5</i>		Guidance of county departments on the revenue distribution
<i>Norms 6</i>		COCL uses rights public transaction workflow
<i>Norms7</i>		COCL development and utilization regulation and other issues
<i>Net1</i>	Communication network	Stakeholders involved in the matter of COCL
<i>Net2</i>		Frequency of contact between village collectives and county departments
<i>Net3</i>		Frequency of contact between village collectives and town departments
<i>Net4</i>		Frequency of contact between village committees and villagers
<i>Tw1</i>	Trustworthiness	Whether policy implementers and village committees will provide correct information
<i>Tw2</i>		Whether the policy implementer and the village committees will mislead the villagers
<i>Tw3</i>		The ability of policy implementers and village committees to make the right decisions

<i>Tw4</i>		The ability of policy implementers and village committees to lead the COCL marketization to success
<i>Tw5</i>		Whether the policy implementer and the village committee have the collective interests of the village as their main point of departure
<i>Trust1</i>	Trust	The level of trust that village collectives have in county departments to be able to advance the process of COCL marketization
<i>Trust2</i>		The level of trust that village collectives have in town departments can advance the process of COCL marketization
<i>Trust3</i>		The level of trust that villagers have that the village committee can advance the process of COCL marketization

5.3.4 Methods for examining communication network

For the communication network question items in Table 5.3, the frequency of stakeholders' connections serves to create a 61*61 adjacency matrix, which is then used in the social network analysis. Gephi 0.9.2 was applied in this study to convert the neighborhood matrix into a social network analysis model. It is employed to analyze the overall structure and interaction patterns (network density and network geodesic distance) in the Global Network, as well as the connection features (degree centrality and strong and weak ties) between the ego and its immediate neighbors in Ego Network.

5.3.4.1 Network density

A social network's density reflects how interconnected its members are to one another. It goes like this:

$$Density = 2L/[N(N - 1)]$$

L stands for the number of edges (connections) in the network. N represents the total number of nodes (individuals) in the network. The range of values for density is [0-1].

5.3.4.2 Network geodesic distance

The length of the network geodesic distance is known as the network distance. It is utilized to determine the absolute minimal number of intermediaries required for information to be shared and transferred between any two network parties. The range of distance values is [1-5].

5.3.4.3 Degree Centrality

Degree Centrality measures how central the stakeholder is to the communication network. It suggests that those with direct ties to others are the most important, powerful, and influential stakeholders, as stated by the formula below.

$$DC_i = k_i/(N - 1)$$

DC_i denotes the degree centrality of node i , k_i is the number of edges directly connected to node i , and N is the total number of nodes in the network, including node i itself. The centrality of the directed communication network studied in this research is evaluated using the outdegree and indegree measures. The outdegree of a point is the number of other points it directly points at, whereas its indegree is the number of points that directly point towards it. High outdegrees encourage knowledge creation, while high indegrees demonstrate a strong capacity for learning from others.

5.3.4.4 Strong ties and/or weak ties

This study intends to use "Strong ties" and "weak ties" to investigate the quality and diversity of the community networks of COCL marketization. "Strong ties" and "weak ties" refer to two types of relationships between stakeholders in the communication network, often used to characterize the closeness or frequency of communication in interpersonal relationships. Strong relationships among stakeholders result in close connections between individuals, which is advantageous for resolving complicated issues as well as nurturing trust and reciprocity. Due to their emotional support and close social interactions, restricted access to information, and inability to be exposed to fresh and diverse information, stakeholders are frequently given redundant information to share. Compared to strong ties, weak ties also play a significant role in networks as well. Due to infrequent communication, superficial familiarity, and distinct social circles, stakeholders can be provided with new information and resources, expanded personal social networks, and offered a broader social support system. In this study, we hypothesize that network clusters that frequently communicate with their own village are regarded as strong ties, whereas those that frequently communicate with other villages are deemed weak ties. A diversified network with strong ties and weak ties can offer a wider range of resources and support, positively influencing the growth and success of collective action.

5.4 Results

5.4.1 Norms and cognitions of COCL marketization

Changyuan County¹¹ government formally began reforms in 2015 when the

¹¹ It is important to note that rather than Dingluan Town's market access policy, we focus on Changyuan County's

Central Government released the *"Opinions on the Pilot Program on the Reform of the Systems of Rural Land Acquisition, Entry of Rural Collectively-Owned Commercial Construction Land into the Market, and Housing Land"*. Table 5.1's third column contains a list of rules and regulations Changyuan County passed to support the successful marketization of COCL. The *"Management Policies of COCL Market Entry"* and the *"Public Trading Workflow for COCL Market Entry,"* which cover the fundamentals of the market entry model's scope, fundamental practices, democratic decision-making, etc., were two of the implementation regulations that Changyuan County released in the same year. There followed successive issues of *'Implementation Rules for the Levy and Utilization of Adjustment Funds Collected from COCL Added Value'* and *'Guidance on the Revenue Distribution of COCL Market Entry'*.

Changyuan County has released policy framework guidelines that take into account the regional circumstances. In addition to restraint of various behaviors by Town.Auth. and village collectives, the county-level policy also grant some power to key actors during the entry into the market, which results in some disparities between the policy requirements and the real scenarios. At the stage of qualification review, for example, *'Democratic Decision-making Policies for COCL Market Entry'* requires that *'All villagers within the township must be given an opportunity to express their views on the matter'*. For instance, *"Democratic Decision-making Policies for COCL Market Entry"* stipulates that *"All villagers within the township must be given an opportunity to express their views on the matter"* at the qualification review stage.

in this section. Despite being the focus of our study, Dingluan Town is under the jurisdiction of Changyuan County, which adheres to Changyuan County's market entry regulation.

The villagers were characterized as bounded rational entities, primarily due to their access to incomplete information and limited cognitive capacity for understanding the complexities of COCL marketization procedures and policies. For example, the villagers they often depended on readily available information primarily concerning financial compensation, overlooking broader policy implications such as market entry, land value evaluation, and the creation of an adjustment fund, etc.

Moreover, the villagers' cognitive limitations were further highlighted by their preference for immediate financial returns over the long-term impacts and sustainability of village projects. Besides, the villagers seemed to have placed trust in the village collective for decision-making, which, due to a lack of transparency and rule adherence, sometimes led to rights violations. An illustrative case occurred in the fifth village, the village collective even used the majority of the revenue to build a tourist resort village without informing the villagers of the compensation or giving them the compensation, in violation of the rules that "matters must be open to all villagers" and "the village collective can extract public service funds from the revenue at a rate of no more than 30% for expenses on public service".

5.4.2 Communication network analysis

5.4.2.1 The overall structure and interaction patterns in the Global Network

The enhanced network density, which enables a more compact network topology, strengthens the connections between the COCL marketization process stakeholders. On the other side, stakeholder links become more sparse and the network gets more dispersed as the network density drops. Typically, the network density in the actual world is less than 0.5 (Prell, Hubacek, & Reed, 2016), and in contrast, Dingluan has a

network density of 0.281, indicating that interactions between stakeholders involved in the marketization process of Dinglun are infrequent, which prevents the dissemination of information.

The average distance in the Dinglun area is 1.854, which indicates that the number of stakeholders who can communicate with each other to exchange information is typically less than 2. The information about COCL marketization can be easily obtained by those who need it. The area's communication structure is generally flat, as evidenced by the lower network density and shorter average distance. Despite the limited availability of the network, all interested parties can still obtain information readily from whomever they contact. Group projects are more likely to succeed because of Dinglun's communication network's cohesion and accessibility.

5.4.2.2 The connection features and its immediate neighbors in the Ego Network

Table 5.4, Figures 5.5 and 5.6 are used to analyze how the network's stakeholders' behavioral roles and relationships have an impact on the collective action of COCL marketization. Table 5.4 provides centrality metrics of the 61 stakeholders' communication network created in Figure 5.5, while Figure 5.6 shows the strong and weak ties among stakeholders in the six villages of Dinglun Town.

Governmental institutions (county and town departments) expedite information flow and COCL marketization. Among them, town-level departments dominate COCL marketization and have close relations with other subjects. They report to county-level departments on COCL marketization, contact landowners, and arrange land market entry through grassroots intermediary services, and thus have a stronger influence over

information transfer and resource control. Table 5.4 demonstrates that the highest level of centrality is held by two town-level authority members, with degrees of Town.Auth.Mem.1. and Town.Auth.Mem.2. exceeding 100. Additionally, we discover that all town-level authorities have high outdegree and indegree values (above 50), suggesting that they have an impact on policies relating to communication (through collecting and sharing information). The county authorities' roles in the process are less important than those of town-level authorities because of their lack of direct involvement and preference for managing activities at the township and village levels through the implementation of market-oriented norms and regulations. County departments are administratively higher than town departments, but they lack full communication with village-level stakeholders, making them less central in information transmission and gathering than the town department. The network also consists of stakeholders who check that the COCL complies with fundamental standards and rules, including representatives from various county-level departments like Coun.Env., Coun.Dev., Coun.Fina., Coun.Agr., etc. Stakeholders in Coun. Pil., Coun. Hou., and Coun. Nat. are more concerned with disseminating information than with gathering it, and their outdegree is typically significantly greater than their indegree (Table 5.4).

Village committees play the responsibility of disseminating superior instruction to the public in each village. They implement COCL marketization strategies from higher-level departments with the purpose of connecting with individual communities on the network's periphery. Table 5.4 reveals that, with the exception of Vil.3.Com.Mem.2, all

village committees have a greater outdegree than an indegree, indicating that they play a greater role in information transmission than in information collection. However, the effectiveness of each village committee in informing the villagers varies. The 5th and 6th villages' village committees are at an average or even greater degree of centrality. Their villagers' centrality, however, is typically below average, only between 12 and 19. This is a result of the village committee's inadequate advocacy efforts or a failure to give the populace useful information. Their villagers were not actively given access to the information, which led to their marginalization and generally low engagement. On the other hand, the village committees in the 2nd and 3rd villages actively shared information regarding marketization, in order to promote the mobility and accessibility of information and hasten the process of marketization. The villagers of the 2nd and 3rd villages took the initiative to research COCL marketization and disseminate information about it. The villagers are therefore highly central to the two communities.

Land-use rights holders (Comp. and Individ.) be optional to contribute substantially to actively interact and obtain information from all stakeholders involved. Their degree of centrality is likewise quite low, at less than 40, and they have fewer direct connections with other stakeholders. This first manifests that land-use rights holders have less connection with the county-level departments. They are exclusively obtaining planning authorization, handling land-use procedures, and in charge of sending fees and taxes to county agencies. Additionally, they can also avoid interaction with the villagers because most land-use rights holders are local companies or individuals. This means that there are greater options for direct engagement with local village collectives,

negating the need for excessive involvement from town-level departments.

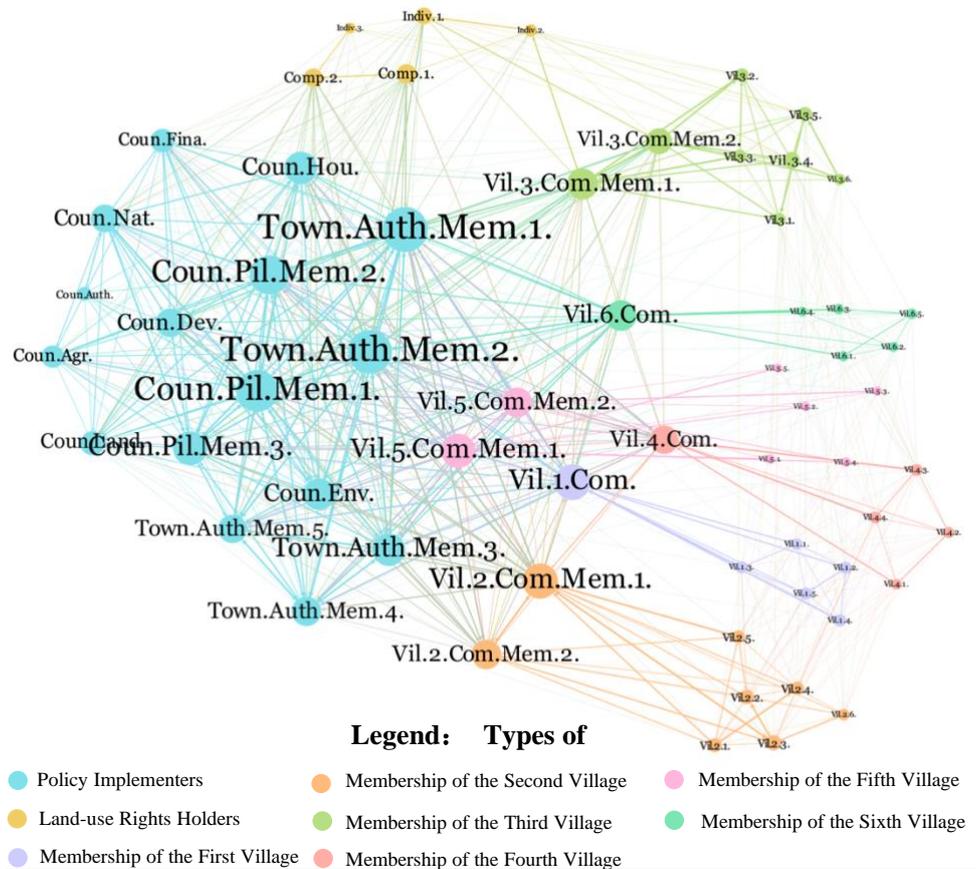


Figure 5.5. The COCL marketization network and centrality measures.

(Note: Full names of the abbreviations refer to 3.3.1).

Table 5.4. Results of centrality measurements.

Stakeholder	OutDegree	InDegree	Stakeholder	OutDegree	InDegree
Town.Auth.Mem.1.	119	107	Vil.3.5.	22	21
Town.Auth.Mem.2.	117	101	Vil.2.2.	22	23
Coun.Pil.Mem.1.	104	102	Vil.2.1.	21	21
Vil.5.Com.Mem.1.	96	65	Vil.2.5.	21	16
Coun.Pil.Mem.2.	96	94	Vil.4.3.	19	11

Vil.2.Com.Mem.1.	92	76	Vil.2.4.	18	21
Vil.1.Com.	90	81	Vil.1.3.	17	15
Vil.5.Com.Mem.2.	81	55	Vil.4.4.	17	13
Vil.6.Com.	79	62	Vil.4.2.	16	10
Coun.Hou.	76	75	Vil.3.2.	15	25
Vil.3.Com.Mem.1.	75	68	Indiv.2.	15	19
Coun.Pil.Mem.3.	73	87	Vil.4.1.	14	9
Town.Auth.Mem.3.	69	84	Vil.1.2.	14	18
Coun.Nat.	68	56	Indiv.3.	13	10
Coun.Env.	68	79	Vil.2.6.	13	15
Vil.2.Com.Mem.2.	67	66	Vil.1.4.	13	19
Vil.4.Com.	64	63	Vil.3.1.	12	23
Coun.Dev.	59	71	Vil.1.1.	11	16
Town.Auth.Mem.4.	58	75	Vil.3.6.	11	16
Vil.3.Com.Mem.2.	53	60	Vil.1.5.	11	21
Town.Auth.Mem.5.	52	76	Vil.6.4.	10	9
Coun.Fina.	47	53	Vil.6.5.	10	13
Coun.Land.	47	55	Vil.6.3.	10	12
Coun.Agr.	41	51	Vil.6.2.	10	10
Comp.1.	38	37	Vil.6.1.	9	12
Comp.2.	36	34	Vil.5.1.	8	9
Indiv.1.	32	27	Vil.5.2.	5	10

Vil.3.4.	30	25	Vil.5.4.	5	11
Coun.Auth.	25	17	Vil.5.3.	4	11
Vil.2.3.	25	25	Vil.5.5.	4	9
Vil.3.3.	23	15			

5.4.2.3 Strong ties and weak ties among villagers

Figure 5.6 shows the strong and weak ties among stakeholders in the six villages of Dingluan Town. The relationships between the villagers in 3rd villagers and 4th villagers are both strong ties, which is theoretically conducive to the expression of ideas and trust construction among them. In practice, these two villages exhibit radically distinct phenomena. Although the third village has strong ties, the demerit of it is a lack of information and communication with individuals from other villages. As a result of poor access to information and villagers' limited understanding of the benefits of COCL marketization, collective action is hampered, as indicated by villagers unanimously voting not to engage in COCL marketization. Villagers in the 4th village, which is equally tight-knit as the 3rd village, are in a state of passive engagement mode and, led by the village committee, have not voiced any opposition to the marketization of COCL, which is also in some ways a triumph of collective action. Although the third village has strong ties, the demerit of it is a lack of information and communication with individuals from other villages. As a result of poor access to information and villagers' limited understanding of the benefits of COCL marketization, collective action is hampered, as indicated by villagers unanimously voting not to engage in COCL marketization. In the process of COCL marketization, strong ties characterized by

inclusiveness, guidance, openness, adaptability, and trust seem to be more conducive to promoting collective action. On the contrary, strong ties that promote isolation, restrict awareness, enforce conformity, lack facilitating leadership, and resist change are impediments to collective action in the context of COCL marketization.

The villagers of the second village (Vil.2.3, Vil.2.2, Vil.2.1, Vil.2.5) have weak ties with outsiders. These individuals would exchange information about COCL marketization from various villages, such as which village collectives have begun to trade their COCL, how much compensation they receive, and what the benefits of trading the land are. Villagers would pass the information on to other members of their village collectives and complete the information dissemination under a weak tie network. Although weak inter-village ties are not as strong as intra-village ties, it do increase information mobility and accessibility and activate internal information, which helps Dingluan Township's collective action succeed by advancing the dissemination of COCL marketization information and improving its thoroughness and openness. Therefore, weak ties that promote information exchange, connectivity with outsiders, mobility and accessibility of information, activation of internal information, and facilitation of collective action are instrumental in advancing collective action like COCL marketization.

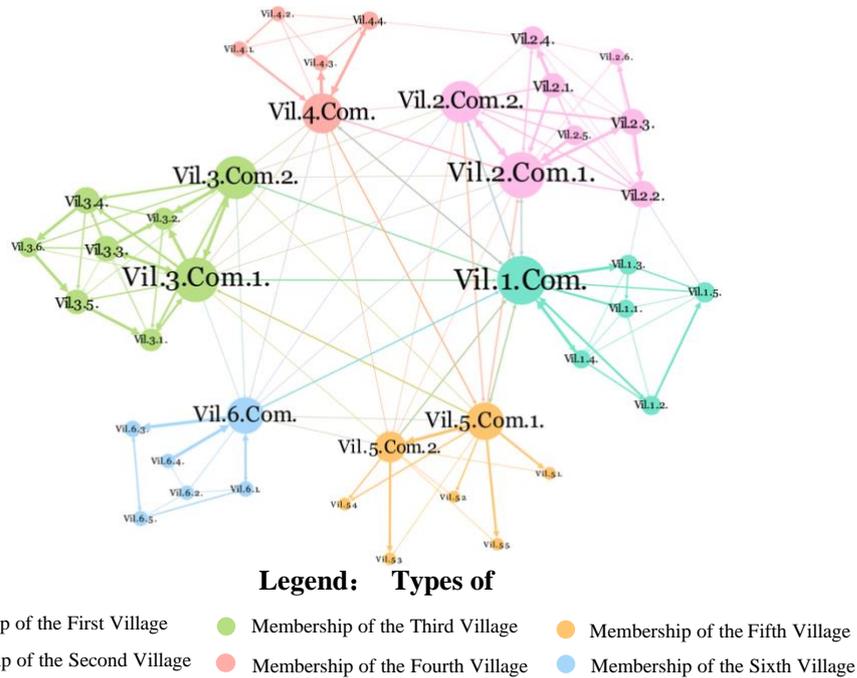


Figure 5.6. Weak and strong ties of village-level stakeholders.

5.4.3 Trustworthiness of key actors

Three qualities typically are used to illustrate the trustworthiness of key actors. The first is their ability to have an impact on particular matters, as well as their benevolence in prioritizing the common good over individual self-interest, even when the latter is more advantageous. Additionally, it is shown through integrity in constantly upholding a set of standards that satisfy the demands of other stakeholders. The village councils in Dingluan Town can be seen as major forces behind the marketization of COCL, and it is crucial for this process to their ability, benevolence, and integrity.

Looking at the specifics, the village committee's ability is demonstrated by their making the right decision and guiding the successful market entry. After Vil.3.Com. adequately explained the compensation and duration of COCL market entry, the villagers of the third village unanimously decided to forsake the COCL marketization

due to the inability of their land to be consolidated. In the third village, there are still extensive, dispersed lands, which leads to low land intensification and utilization efficiency. This demonstrates how Vil.3.Com's inability to consolidate land and penetrate the market diminishes its trustworthiness.

Integrity necessitates that the village committee provide accurate information on market entry and assist the villagers in making the best decision for their rights and interests. The 5th village was the earliest village to start consolidating COCL. Vil.5.Com invaded the land use rights of the villagers a decade ago, and developed "Shuang Chuang Park," an industrial park for the manufacture of medical devices. Due to the earlier development of the common land, the infrastructure of the fifth village has improved greatly when compared to other villages; yet, the villagers' income has not increased significantly; instead of receiving 52,500 yuan per mu all at once, they now only receive 800 yuan per mu annually. This demonstrates Vil.5.Com's inability to effectively interact with the local villagers in order to raise their awareness of COCL's entry into the market and to pay attention to their appeals; as a result, Vil.5.Com's lack of integrity undermines its trustworthiness.

The benevolence of the village committee can be demonstrated by prioritizing collective interests over personal interests and political promotion needs, promoting the village's collective economic development, improving living conditions and infrastructure, increasing villagers' income, and expanding their employment opportunities. The 2nd village implemented the "complete land consolidation" strategy, converting almost 40 mu of land into the medical equipment industry. The villagers

were made aware of the compensation, duration, and usage of the land being traded, and the Vil.2.Com. promptly compensated 52,500 yuan per mu. The villagers trusted Vil.2.Com. and thought the compensation amount was fair, and the COCL of the second village was successfully traded. Thus, Vil.2.Com. is the most trustworthy, possessing ability, benevolence, and integrity.

5.4.4 Collective action dilemmas

5.4.4.1 Cognitive Biases in Normative Understanding

Between villagers and village committees, the lack of reciprocity and the cognitive bias of norms have a substantial detrimental impact on the growth of mutual trust, stifling the progress of COCL marketization. Reciprocity deficiency and cognitive bias refer to a lack of equitable give-and-take between villagers and village committees involved in the management and decision-making processes related to COCL (Kim et al., 2022; Whitham, 2021). In the cases of this study, the reciprocity deficient and cognitive bias are mainly due to the uneven information access between village committees and villagers. Village committees, which hold a great deal of knowledge, find themselves in an uneven relationship with villagers, whose perception of standards is often limited to immediate tangible benefits such as remuneration. Bridging this knowledge gap is imperative in order to promote a common understanding of the broader implications of marketization. Focusing only on direct benefits, villagers may have difficulty understanding indirect advantages, including expanded employment opportunities and clearer demarcation of property rights. If things go on in this matter, villagers lack the

village committees' degree of desire and inclination to participate in marketization as village committees.

The failure of COCL marketization in some villages might be attributed to the lack of basic principles, such as the marketization process and benefit sharing. The lack of clarity creates uncertainty, perceived inequity, and a sense of power imbalance, eroding trust as villagers question the motives and actions of the committees (Guttmann, 2021). Without accountability and consistent decision-making, coupled with a failure to meet expectations, villagers may become disillusioned, further deepening the mistrust. 'Villagers' limited understanding of compensation schemes, compounded by prevalent cognitive biases, hinders the effective collective decision-making essential for sustainable land resource management practices.

5.4.4.2 The challenge in expressing stakeholders' demands

The villagers' low centrality in the communication network is detrimental to the expression of villagers' demands and the creation of the trust, and the links between the villagers and the village committee, and governmental institutions are insufficient. According to the findings of the study, villagers have trouble exporting their ideas to the village committee and town-level authority and are frequently one-way recipients of information. The centrality study also reveals that the average centrality of villagers in all six villages is less than 30, which is much less than the average centrality of the communication network (47.6), indicating that the villagers are at the edge of the communication network.

Limited connections hinder the efficient flow of information, reducing the visibility of villagers' concerns and their representation in decision-making processes led by the village committees and governmental institutions (Berner, 2022). This lack of representation diminishes trust-building opportunities, as effective communication is essential for fostering understanding and addressing specific issues. Moreover, the low centrality exacerbates a sense of marginalization, impeding access to resources and perpetuating a cycle of limited visibility, weakened communication, and reduced trust in the overall decision-making framework (Harris et al., 2023). The villagers' views and feelings, as well as timely feedback from the village committee, should have been a suitable means to address the villagers' problems; nevertheless, the lack of such a channel led to the failure of trust-building between the villagers and the village committee.

Additionally, strong links, identified within the study, are crucial for disseminating information and fostering collaboration among villagers. Yet, it also indicates that strong ties which allow for isolation, limited awareness, uniformity without critical evaluation, absence of facilitative leadership, and resistance to change, the limited or superficial information, potentially impeding comprehensive and environmentally sustainable decision-making, will be propagated. Weak ties, on the other hand, have been highlighted as vital bridges for promoting marketization with a broader perspective, essential for integrating environmental sustainability into land management practices.

5.4.4.3 Crisis of trust among key actors

The village committee's incompetence, concealment of valuable information, self-interest, and other disreputable actions can seriously affect the promotion of trust within the village collectives. As the key actor, the village committee dominates the communication network and has strong access to and communication of information, which gives it tremendous influence and control over the available resources. The village committee will be considered "incompetent" if it fails to instruct the villagers to organize and intensively utilize the land. Consequently, villagers will not trust an "incompetent" village committee. The concealment of accurate information and the prioritization of political promotion over the collective interest have direct detrimental effects on the collective interest and erode mutual trust.

When committees are perceived to lack the capacity to manage community affairs, to act in secrecy, to prioritize personal interests or to be unethical, this erodes villagers' trust in their leadership (Gil-Garcia et al., 2020). The failure of committees to prioritize the collective interest, inconsistent decision-making and lack of transparency further exacerbate the crisis of confidence. Trustworthiness among key actors emerges as a pivotal element, facilitating informed and united community actions for sustainable practices. Fostering trust within communities helps navigate through challenges like cognitive biases, expression challenges, and trust crises, ultimately strengthening their collective ability to prioritize long-term environmental sustainability over short-term gains.

5.5 Discussion and Conclusion

The potential for reaching sustainable natural resource management is the subject

of intensive scrutiny, but is not exclusively technical per se (Ortiz-Riomalo et al., 2023). From an intrinsic standpoint, this potential relies upon the willingness and ability of collectives to act. To advance the sustainability of natural resource management, the collective action dilemma is one challenging and complex problem to resolve (Castella, 2009).

This paper examines how the collective action dilemma of rural collectively-owned operating construction land (COCL) can be resolved to facilitate land marketization and sustainable natural resource management. The relationship between the three elements of social capital — norms, networks, and trustworthiness — and trust is examined, as well as the experiences and dilemmas that affect collective action, using a convenience sample of policy implementers, landowners, and land users involved in the policy of COCL marketization in Dingluan Town, Henan Province, China.

In terms of how norms affect collective action, we conclude that the villagers' purported ignorance of the policy breeds mistrust, which in turn affects collective action. The extent to which villagers in Dingluan Town are aware of the COCL procedures, administrative measures, and contents affects their assessment of the benefits and risks to land-use rights holders and the professional competence of government staff. The findings indicate that the villagers are not concerned with the system of transferring the use of the property and administrative procedures, but only with compensation payments and their own interests in the COCL. The villagers were not adequately informed of the marketization, which led to a lack of awareness and a skeptical and distrustful attitude towards the implementers, thus affecting the progress of the COCL.

Concerning the impact of networks on collective action, we posit that communication networks play a crucial role in information transmission. When communication networks within villages are densely interconnected, information can move rapidly within the network, and more effective information exchange and coordinated action by stakeholders can be realized through the further connectivity impact of weak ties between villages. From the perspective of the global network, village collectives with denser and more accessible communication networks have greater trust and participation in collective action. In the context of ego networks, the success of collective action in the second village implies that collective action is more readily accomplished in networks with weak ties. The conclusions of Granovetter (1985) are supported by this paper. In addition, we observe strikingly distinct outcomes for collective action that succeeds in the fourth village but fails in the third village, despite both villages having strong ties. This is due to the fact that strong ties limit the transmission of information from the outside. Nonetheless, the proper call to action from key actors within close-knit groups is frequently decisive for collective action within a strong-tie group.

Regarding the influence of trustworthiness on collective action, it is visible through the villagers' identification with the key actors' professional competence, evaluation of the threats to their interests, and judgment of integrity and benevolence. The results indicate that trustworthiness functions as a mediator between norms and trust. Even if villagers don't completely comprehend the norms of COCL marketization, they may be prepared to trust the decisions of credible important actors nevertheless,

which can greatly increase the number of transactions that take place in the land transaction market.

The findings have derived additional insights. First, villagers' understanding of COCL marketization must be improved so that they may better weigh the potential gains and losses of the relationship. A neutral third party is created to promote the effectiveness of natural resource management, such as COCL's policy goals, statutory requirements, and regulatory actions. Functioning as a platform for local consultation and lobbying, it also conducts in-depth research on local social network relations and designs tailor-made programs and management strategies.

Second, it is suggested that communication networks be made more interconnected so as to facilitate the swift and efficient flow of information, detect critical linkage breakdowns, and provide additional linking roles for weak links. In order to boost the density and connection of the social communication network in a targeted manner, information is taken from the social network about the neighborhoods and key actors and shared with them.

Third, the results have implications for open communication between advocates of a policy and its most influential supporters. Coordination between landowners and land-use rights holders requires the involvement of both policy facilitators and key actors. The willingness of landowners to transfer land-use rights is highly dependent on the professional skill and integrity of the land broker, especially among strong-tie groups. In order to earn the trust of locals, it is suggested that a transparent and reasonable process for the distribution of proceeds be put in place, the professional

capacity of the government and village committees be bolstered, and the letter reporting system be enhanced.

There are a number of open questions that require more research. This paper employs a single case study of a pilot area in Henan Province, and further research into the potential regional differences in the trajectories of social capital, trust, and collective action might be conducted using a comparison study of various pilot areas. Furthermore, the research in the form of interviews may not necessarily be backed up sufficiently by quantitative evidence or statistical inference. Subsequent research could be carried out by deepening the individual information of stakeholders and building quantitative models for analysis.

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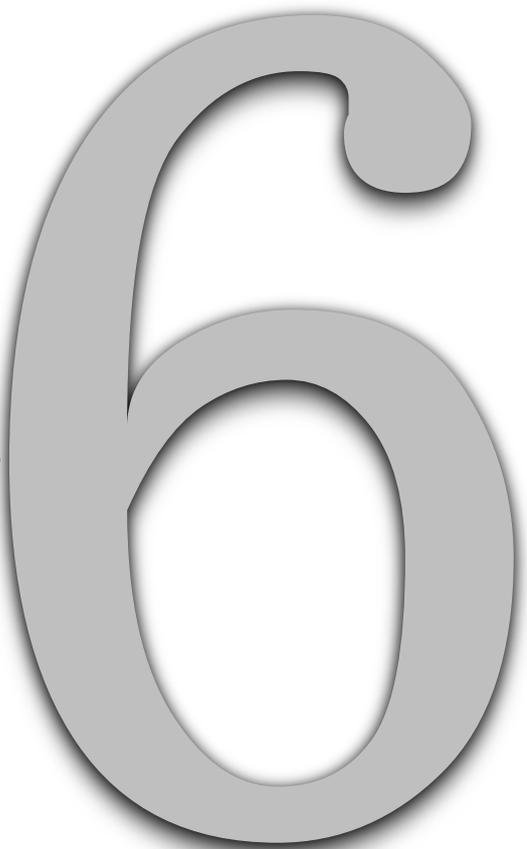
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CHAPTER

Chapter 6. The Effectiveness of Voluntary Collective Action in China's Rural Land Development*

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Abstract

China is gradually and directly making rural collective land available on the land market. It is important to understand how stakeholders collectively treat and manage this land, and if this collective action leads to effective and sustainable results. This paper, however, revises Ostrom's framework of collective action by constructing the joint analysis of social capital, trust, and cooperation performance, in order to better capture the distinction between voluntary action and enforced action of stakeholders towards a sustainable goal. We analyze the role of voluntary collective action through higher-order structural equation modeling (HSEM), applied to a database consisting of 324 households in Jiangsu Province, China, collected in 2022 and 2023. The results suggest that social capital effectively promotes villagers' trust in policy implementers by establishing new institutions, increasing actors' trustworthiness, and improving channels of information exchange, and the first two means are more effective than the latter. We also demonstrate the significant positive effect of trust on cooperation

performance, with trusting relationships with familiar groups and the credible behavior of policy implementers affecting performance outcomes of collective action. Moreover, social capital drives cooperation performance through the mediating effect of mutual trust that it breeds. With this revised framework and verified hypotheses one can thus create more effective policies to avoid inequality and informality in the land marketization process in China.

Keywords

Rural land development; voluntary collective action; Trust; HSEM; China; Ostrom's framework

Chapter 6. The Effectiveness of Voluntary Collective Action in China's Rural Land Development

6.1 Introduction

Managing natural resources is one of the crucial tasks of both national and local governments, but also relies on the pro-active contributions of communities and individuals worldwide. There is growing evidence that the latter is increasingly crucial for reaching sustainability goals, as it firmly shapes joint responsibilities and accountabilities. (Poteete et al., 2010). Despite this evidence, the bottom-up voluntary local management of land also exhibits collective action dilemmas, as it inevitably involves aligning contrasting individual opinions and preferences, which makes it difficult to achieve an effective consensus. Particularly in China, such type of collective action can be prone to hierarchical administrative agency and influence, which could effectively disturb sustainable collective action, and lead to social imbalances and not reaching collective goals (Liu and Ravenscroft, 2016). Therefore, it is important to better understand how to establish effective partnerships among local stakeholders to reach sustainable and responsible resource management goals.

A specific focus of natural resource management concerns rural land development (RLD). RLD traditionally strongly builds on principles of collective action, yet RLD practitioners are also aware that reaching RLD goals has to overcome dilemmas of rent-seeking behavior, the prisoner's dilemma, free riding, and low perceived returns (Zhou and de Vries, 2022a). These kinds of counter-effective effects can occur in rural areas because of the complexity and uncertainty of property rights, which leads to behavior

pursuing individual interests instead of collective benefits (Holden and Ghebru, 2016; Kan, 2021). Nevertheless, there is also evidence that securing land rights might not necessarily overcome this individual benefit-seeking behavior, suggesting that this problem is rooted in fundamental logics and principles of how and when collective action with collective benefits prevails over individual behavior (Farrell and Knight, 2003; Ho, 2014). Furthermore, even if it can be possible to achieve effective outcomes in collective action by establishing equal power relations or hierarchical power relations, there are still certain challenges that must be overcome. In some studies, Ostrom's framework of collective action, and the subsequent publications on institutional action aim at describing and analyzing at how targeted interventions could minimize the negative effects and identify (sort out) the mechanisms responsible for influencing cooperative obstacles (Hassan and Blore, 2015; Kresna, 2021). Yet, this framework also faces empirical counter-evidence. Factors such as social capital, trust, reciprocity, and cooperation performance are still insufficiently studied in their inter-relationships, suggesting that it is still unknown to which extent collective action leads to effective and sustainable use of land and other resources and under which conditions collective action prevails over individualized action (Wang and Wang, 2022; L. Zhou et al., 2020a). In light of this unknown, the objective of this study is to analyze how (much) collective action relates to social capital, trust, and cooperation performance, and how to reach effective voluntary collective action supporting the goals of RLD. We define voluntary collective action in RLD as a dynamic balancing process by which landowners coordinate their behavior to build cooperation based on trust and satisfy

individual and group interests. In contrast, enforced collective action, often driven by external coercive authority, while effective in rapidly mobilizing resources and achieving specific objectives, may lack the depth of community engagement and intrinsic motivation crucial for long-term sustainability.

Our research question is how to describe, measure, and characterize voluntary collective action, seeking to understand its underlying mechanisms and impacts. As the construction, application, and validation of the theoretical framework contribute to addressing the collective action dilemmas and enhancing collectively owned land development practices in China and globally, we start by positing that the existing frameworks studying collective action need to be revised. This study thus first revises the theoretical framework of Ostrom by incorporating trust and risk into the logic of voluntary collective action, and proposes three basic assumptions regarding the relationship between social capital, trust, and cooperation performance. The justification for this adaptation is the assumption that instead of assuming that collective behavior draws on a stable and given degree of interpersonal and mutual trust, it follows from a dynamic balancing act between social/mutual trust and social/mutual risk. In this balancing act, individuals continuously make the assessment of whether giving up individual responsibility to a group's collective interest is effectively better to reduce or manage collective and individual risk.

To evaluate this assumption empirically, we apply the econometric techniques of a higher-order structural equation modeling (HSEM), which allows us to assess the potential relationships among different constructs and evaluate the presence and impact

of mediating variables or indicators. HSEM is particularly suited for this study as it enables us to visualize and quantify the complex interplay of voluntary collective action within the marketization of collectively-owned operating construction land (COCL). This translates operationally into finding significant correlations between the constructs of social capital, trust, and cooperation performance through HSEM. Few studies have quantitatively examined voluntary collective action in China's policy of COCL marketization that began in 2015, and we fill this gap with the use of 324 household data collected in Jiangsu province of China during 2022 and 2023, offering new insights into the dynamics of COCL marketization and the role of social capital, trust, and cooperation performance in shaping collective action.

This study contributes to understanding how and when collective action in RLD functions effectively. First, we find that voluntary collective action is possible with equal cooperative relationships and with hierarchical systems, which is approached from the perspective of villagers and involves investigating their potential intentions rather than merely observing their unspoken or implicit opinions in the field survey. Second, we modify the second-generation collective action theory framework by clarifying the mediating role of trust and the potential risks in cooperation and verifying the hypotheses through empirical evidence. Third, the study employs high-order and multiple nested HSEM models to conduct a more comprehensive and in-depth analysis of collective action in the COCL marketization, which is rare in RLD research relative to a low-order or single-level SEM model (Tong et al., 2021). Fourth, this study underscores the unique attributes and efficacy of intentional, organized collective

efforts in resource management. By contrasting this structured approach with emergent, informal self-organization, it highlights the distinctive advantages and challenges of structured collective participation in fostering sustainable community-led initiatives. Overall, the novelty of this study lies in the multidimensional and in-depth analysis of collective action issues, as well as the further refinement and empirical validation of the improved theoretical framework.

The paper is structured as follows. Section 2 reviews the collective action dilemma in RLD and debates on solutions. In Section 3, an improved theoretical framework adapted from the second generation of collective action is constructed, and hypotheses are formulated based on this framework. Section 4 presents the data source, variables, and HSEM method used, while Section 5 presents the results of the empirical analysis to examine the constructed theoretical framework. Finally, the last two sections discuss and summarize the findings of the study.

6.2 Literature review

RLD is often characterized by competing interests, especially in countries where these interests coincide with development advocacy groups (Adelaja and George, 2019; Sun et al., 2021; Y. Zhou et al., 2020) This results in social dilemmas and inevitable tensions in societal and political priority setting. The fact that many stakeholders seek to maximize their own interests rather than the collective good is a critical factor from a rational choice perspective (Hui and Bao, 2013). Among the stakeholders in RLD, villagers are concerned with maximizing monetary profits, whereas the government seeks performance, as well as public services, environmental protection, and social

justice, which transcends monetary benefits and even requires fiscal spending to achieve its public service objectives. Conflicts of interest between stakeholder groups may also take the form of illegal access to and use of land, exclusion of disadvantageous groups or individuals from RLD, etc. (Lian et al., 2019; Zhou and de Vries, 2022a). Land management practices were originally intended to achieve a collective common good (i.e., equitable and efficient sustainable land use). However, rational individual choices which result in social irrationality undermine collective action and contribute to increasing social conflicts.

There are different ideas on how to address this collective action dilemma, amongst others through better identifying and formalizing land property rights (Kalabamu, 2019; Thakur et al., 2020). The assumption is that clearer land property rights may regulate the social behavior of stakeholders, create a secure transaction environment, and also provide guidance on developing land in a rational and wise manner. However, this policy of emphasizing the role of formal tenure systems in securing land property rights does not completely avoid the emergence of several phenomena that are contrary to the theory of property rights. The first phenomenon is that even if property rights are insecure or ambiguous, RLD can still be successfully pursued, with scholars suggesting that factors such as official land documents, perceptions of tenure security, and trust, rather than property rights, influence villagers' behavior (Rao et al., 2020). As a second phenomenon, villagers are generally more likely to enter into informal or oral agreements based on family ties and kinship relationships (Honig, 2022; Tian et al., 2016), which shows that informal institutions

can be equally effective as formal property rights in resolving land disputes and managing public resources in rural areas rights (Ostrom, 2009a; Platteau, 2015).

Some scholars stress that the only way to achieve collective action in RLD is to establish an external coercive authority that can be profitable by forcing cooperation or restructuring benefits (Engström et al., 2022; Prager, 2022; Adobor, 2023), in an effort to alleviate the problems of unequal distribution of benefits and biased policy implementation. However, such coercive policy interventions are often triggered by unequal power relations, which irreversibly deplete the government's credibility, generate strong tensions that aggravate unbalanced relations, and may have potentially or directly detrimental effects on social stability and governance order.

Others emphasize that insecure property rights and informal institutions are equally effective as a function of institutions- credibility, providing significant social support and low conflict (Chen, 2022; Ho, 2014). They argue that the function of institutions, as defined by their location and time, rather than their formality, privatization, or security, is what ultimately decides how well they perform. In spite of whether stakeholders trust each other, institutions influence credibility independently, and the evolution of institutions impacts trustworthiness, which affects cooperation. Institutional evolution affects credibility and trust, which in turn affects cooperation, regardless of whether stakeholders trust each other (Farrell and Knight, 2003). Hui & Bao (2013) dispute that the functional deficiencies of the institutions are not the cause of land conflicts, but rather facilitate them (Hui and Bao, 2013).

Recent research on RLD has mainly focused on exploring strategies to overcome

collective action problems from a top-down approach, such as how to formulate and execute policies, structure governance and institutions. However, little attention has been paid to the role of farmers in the decision-making process of RLD. They are often portrayed and dismissed in the strategic planning process with the justification that they have low participation, a weaker socio-political status, exhibit low-risk tolerance, and rarely contribute with trust and patient cooperation (Sun et al., 2021). The achievement of cooperative ways of collective action may not be the ultimate goal of solving collective action problems. To achieve effective and sustainable land use, it is important to establish an equal cooperative relationship, pay attention to the role and relationships of farmers, and achieve voluntary collective action, which can help alleviate the pressure imposed by top-down approaches and reduce the high cost of land development.

6.3 Theoretical framework and hypotheses

Social capital, trust, and other institutional arrangements are often viewed as important to resolving interest conflict in the RLD (Arnott et al., 2021; Ballet et al., 2007; Gao et al., 2019). The general causal diagram in Figure 6.1 shows how trustworthiness, networks, and institutions operate to promote better outcomes in collective action situations (Ostrom and Ahn, 2003a).

In contrast to the conventional notions and theories about self-interest seeking behavior, in practice people can overcome selfish motives when they coordinate to achieve mutually beneficial outcomes using the collective action theories of Ostrom (Ahn et al., 2011; Ostrom, 1991; Ostrom et al., 1992). These frameworks refute the

belief that coercive authority or privatization of property rights are required to change people's incentives in the first generation of collective action theory (Hardin, 1968; Olson, 2009). In order to better understand voluntary collective action in RLD, this paper revises the theoretical framework of the second generation of collective action and presents the revised framework in Figure 6.2. This revision is based on our belief that collective action currently describes coordinated behavior in RLD, social capital and trust are conditions for collective action, while cooperation performance is the result of certain types of behavior.

We first incorporate the causal relationship between social capital and trust, and construct three factors of social capital that influence trust: trustworthiness, networks, and norms. 'Norms' within our framework, differing from the original theoretical framework, are conceptualized as the shared goals and values of actors that drive enforceable behaviors conducive to collective action, thereby nurturing interpersonal trust and community unity essential for voluntary collective action (Zhou and de Vries, 2022b). We acknowledge that the distinction between trust and trustworthiness is intuitive. Ahn & Ostrom argue that a key aspect of trust is the belief about others' intrinsic motivation trustworthiness (Ahn and Ostrom, 2002), and Ferguson makes the same argument that trust refers to the 'reliability of others' dispositions and motivations", while trustworthiness refers to a component of one's own endowment of social capital (Ferguson, 2013). However, we define trust behaviorally and cognitively rather than their view that 'trust itself is a kind of belief but not an action per se' (Ahn and Ostrom, 2002, p. 11). In our framework, trust is conceived as an outcome of social

capital. It signifies a behaviorally and cognitively based willingness to rely on others, evolving from the perceived trustworthiness of policy implementers—a reflection of their integrity and reliability. As trust develops from unilateral beginnings based on trustworthiness, it matures into reciprocal relationships through sustained interaction, thereby facilitating the resolution of collective action dilemmas and enhancing collaborative efforts in rural land development (Zhou and de Vries, 2022b). In accordance with our understanding of voluntary collective action, individuals might be forced to make a trusting act due to coercive measures that make it risky for individuals to trust. Furthermore, we develop a joint analysis of social capital, trust, and cooperation performance as it relates to the outcomes of collective action -cooperation performance. The outcomes of collective action include both positive considerations of economic and social impacts as well as assessments of potential risks. Trust and social capital provide more opportunities for stakeholders to interact and share resources, but also include a risk of confidential information being stolen. A voluntary collective action may be accompanied by insecure formal land rights and dysfunctional governance systems, posing concerns related to stability and fairness for the group members.

Although previous investigations of collective action in rural land development provide valuable ideas and clues, focusing on the role of farmers and developing cooperative relationships can alleviate the power pressures imposed from the top down and reduce land development costs. Therefore, this paper constructs a second-order structural model that is better able to describe voluntary collective action in rural land development by cutting through trust and collective action theory, analyzing social

capital, trust, and cooperation performance together, clarifying causal relationships in the collective action dilemma of rural land development, and combining the theoretical analysis with the following three hypotheses, as illustrated in Figure 6.2.

Previously conducted research on the relationship between social capital and trust indicates that social capital influences trust in three ways: trustworthiness, networks, and institutions (Ahn and Ostrom, 2002; Svendsen and Svendsen, 2009), and corresponds to three kinds of social capital: relational, structural, and cognitive (Aldrich, 2012; Nahapiet and Ghoshal, 1998; Tsai and Ghoshal, 1998). It is first evaluated based on subjective and objective information such as ideology, previously accumulated facts, information, experience, and knowledge as a basis for judging whether the other party can be trusted or not. In light of the evidence of trustworthiness related to an individual, the risk associated with making a trust decision can be reduced, resulting in a willingness to trust the other party, and thus achieving the goal of mutual trust. Additionally, networks play a significant role in the transmission of information. Individuals' behaviors, emotions, and social capital are embedded in networks, which are dispersed and flow in networks; networks also promote and monitor individuals' behaviors and relationships in frequent interactions, whether based on emotional attachment or behavioral monitoring promote individuals' willingness to trust each other's willingness and behaviors. Again, effective institutions regulate and constrain the behavior of operators, requiring individuals to avoid selfish decision-making styles, limiting the making of social behaviors detrimental to others and the collective, and reducing information asymmetry, which helps break through individual rationality and

develop interpersonal trust relationships and group awareness.

H1. *Social capital has a positive impact on trust.*

According to previous evidence on collective action for RLD, farmers' distrust or faking and forcing trust in the government significantly increases the costs associated with achieving consensus. In this way, land development is delayed for longer periods of time and even stagnates (Cai et al., 2020; Fudemma et al., 2020). In contrast, a second-generation theoretical architecture of collective action (Ostrom, 2009b), based on trust as a key factor in solving collective dilemmas, can facilitate collective action and cooperation by changing rewards and their perceptions, lowering transaction costs, reducing uncertainty, and reducing normative coherence to achieve social equilibrium and collective goals (Villamayor-Tomas et al., 2019). Practically, the extent to which cooperation depends on the establishment of mutually binding trust among stakeholders has not been fully investigated (Gu et al., 2021), so we combine theoretical analysis to establish a hypothesis of the relationship between trust and cooperation performance and provide empirical evidence to examine this hypothesis.

H2. *Trust has a positive impact on cooperation performance.*

In the context of RLD, participants often demonstrate speculative behaviors that hinder cooperation and lead to collective action problems such as rent-seeking,

prisoner's dilemma, free riding, and low perceived returns. These behaviors are often driven by bounded rationality and increase transaction costs, which can be detrimental to RLD (Zhou and de Vries, 2022a). Trust is a key component of social relationships and is often cited as a facilitator of cooperation. The relationship between trust and cooperation performance has been extensively studied, but little research has been conducted on how social capital may influence this relationship (Greiner et al., 2021; Yao and Tian, 2020). According to the second-generation collective action theory, social capital, in the form of trustworthiness, networks, and institutions, can help to affect the trustor's belief about the trustee's behavior and trustee's behavior and further build trust among stakeholders, leading to greater cooperation and ultimately better performance. The higher economic performance suggests that the villagers have been able to benefit from the marketization of COCL, while the higher social performance indicates that the program has had a positive impact on the villagers' social needs and well-being. The lower risk level suggests that the program has been implemented in a way that minimizes negative consequences, thus promoting sustainability and long-term success.

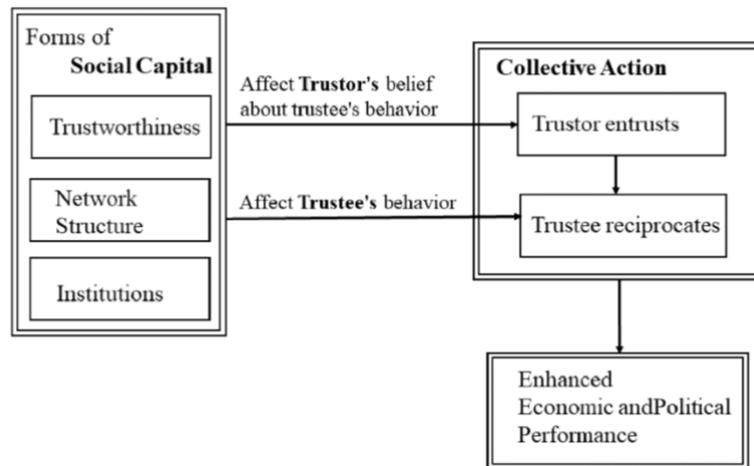


Figure 6.1. The original theoretical framework of the second generation of collective action. (Source: Ostrom & Ahn, 2003)

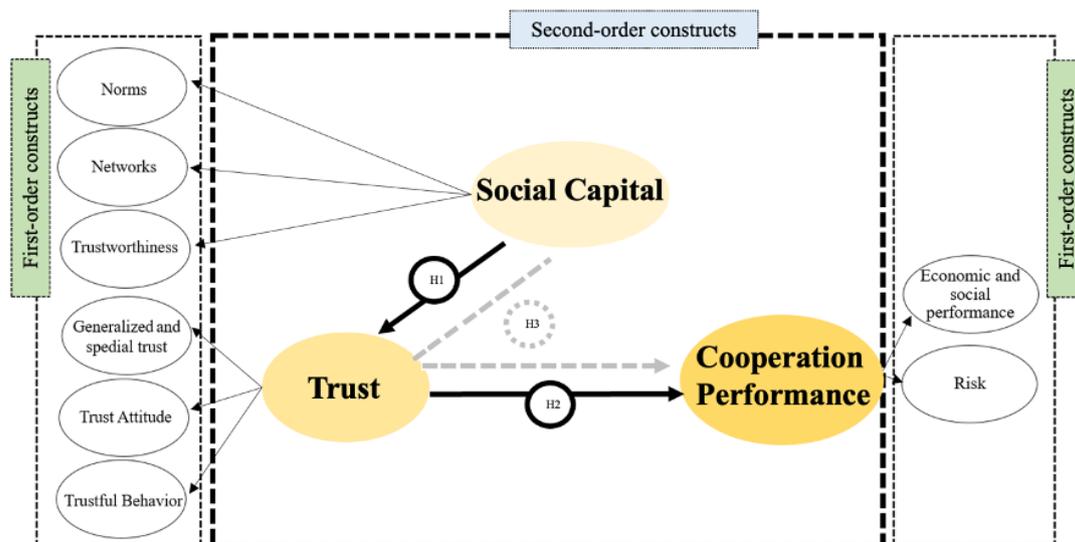


Figure 6.2. The revised theoretical framework for describing voluntary collective action in RLD based on Ostrom and Ahn's second generation of collective action.

6.4 Data, variables, and modeling tools

Our case study specifically focuses on a new RLD policy for collectively owned operating construction land (COCL) marketization proposed by the Chinese government

in 2015, which aims to open up the rural land market and carry out market-oriented reforms of land factors. Prior to this policy, COCL was strictly controlled by the Chinese government and cannot be traded on the land market unless ownership was transferred from the collective to the state through land acquisition. Due to this underdeveloped rural land market, there is a need for more land in urban areas while rural areas have idle and abandoned land. The COCL marketization policy aims to open up the undeveloped rural land market and carry out market-oriented reforms of land factors. It allows COCL to enter the land transaction market with non-renunciation of collective ownership rights, which is a new exploration to establish a unified urban-rural land market. This policy is a typical collective action, involving multiple stakeholders and requiring cooperation, as evidenced by the fact that it requires the leadership of the village collective organization, the consent of at least two-thirds of the members or representatives of the village, and the approval of government departments. Our case study aims to evaluate the effectiveness of the proposed conceptual framework for understanding voluntary collective action and to verify theoretical hypotheses regarding the relationship between social capital, trust, and cooperation performance through empirical analysis.

6.4.1 Data collection

The field survey was conducted in Jiangsu Province, China, from June to August 2022 and in March 2023. We selected Jiangsu Province as our research area due to its abundant COCL (collective construction land) resources. According to 2020 research data, the province had 16,945 collective construction land plots, covering a total area

of 147,801.65 acres. Jiangsu's rural towns and enterprises are well-developed, resulting in a high demand for collective construction land entering the market. Since January 2015, when Wujin District in Changzhou City, Jiangsu Province was chosen as one of the 33 pilot areas, the "South Jiangsu Model" has emerged. This model has practical, replicable, and promotable institutional demonstration value, and is also significant due to its typical nature. The pilot program for collective construction land entering the market has been steadily promoted in key areas throughout the province ever since. We interviewed 350 farming households in 12 villages/communities in 4 cities, namely Changzhou City, Nanjing City, Taizhou City, and Yancheng City (Figure 6.3). A Likert scale is used in the questionnaire survey to measure the variables. The data were collected through questionnaire surveys and face-to-face interviews with households, using a random sampling method initiated by village committee leader nominations and iteratively expanded through participant recommendations until nominee repetition suggested a comprehensive sample. This method, suited for the tightly knit rural populations central to our study, facilitated penetration into rural social networks and ensured sample representativeness, capturing the intricate dynamics crucial to investigating collective land marketization. A total of 324 valid questionnaires were obtained, with a validity rate of 92.5% after eliminating invalid questionnaires. The distribution of the sample covers northern, central, and southern Jiangsu Province, with Yancheng City in northern Jiangsu Province having the highest proportion of 38.01%, Taizhou City in central Jiangsu Province processing 30.96%, and Changzhou City and Nanjing City in southern Jiangsu Province accounting for 18.29% and 12.74%

respectively.

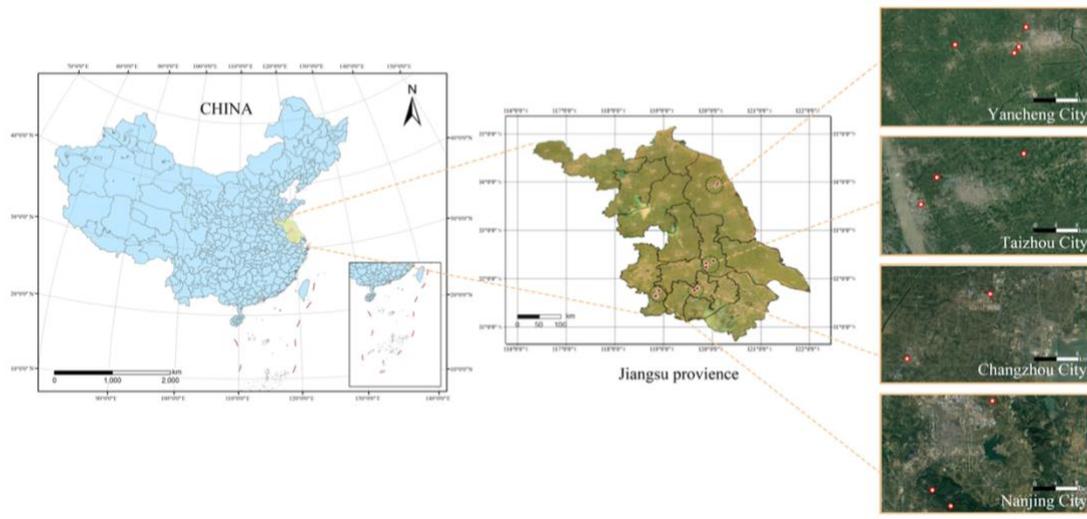


Figure 6.3. Study area.

6.4.2 Sample description

In this study, 324 households were surveyed, with 254 households (78.4%) being male and 70 households (21.6%) being female. The average age of the households was 58 years old. In terms of education, the average number of years of schooling was 9.2, indicating that the majority of the households had a junior high school education. Regarding political affiliation, 65% of the households were politically active, and 35% were party members, with 10% being village cadres. It is important to note that while a village cadre must be a party member, a party member is not necessarily a village cadre. With regard to occupation, 15% were unemployed, 49% worked in agriculture, 9% were self-employed, and 16% worked locally, of whom 6% were agricultural wage laborers and 10% were non-agricultural wage laborers. Four percent worked outside the village, and 7% did not wish to disclose their occupation. Overall, this study sample is composed of diverse farming communities in a rural developing country.

6.4.3 Description of variables

In this section, we developed an indicator design to provide clarity on the roles and interactions of social capital, trust, and cooperation performance in shaping the outcomes of collective land marketization. Each variable is systematically described and measured in Table A1 in Appendix 6.A.

6.4.3.1 Social capital

(1) Norms

At the macro level, social capital is reflected in the villagers' perception of institutional norms (Ahn and Ostrom, 2002), which can be measured in two ways. Firstly, by assessing the villagers' evaluation of the village committee's implementation of COCL marketization across various stages, such as land property right confirmation and registration, public trading sessions, and regulations for land development and use. Secondly, by examining the villagers' understanding and recognition of the policy objectives set forth by the village committee.

(2) Networks

At the meso level, attention is directed towards the groups and organizational structures that enable access to information and resources for COCL marketization. During this process, stakeholders such as family members, neighbors, and village representatives are likely to have close contact with the villagers. When considering the structural dimensions of social capital, it is important to focus on the frequency of contact between villagers and these stakeholders (Lechner et al., 2010; Ostrom and Ahn, 2003b; Paruchuri, 2010; L. Zhou et al., 2020b).

(3) Trustworthiness

At the micro level, social capital involves observing the roles and characteristics of stakeholders in individual-level social relations. The trustworthiness of policy implementers can generate positive social capital, which is mainly measured through four traits: integrity, benevolence, capability, and reputation (Mayer et al., 1995). Additionally, policy implementers' willingness to share COCL marketization information can also enhance their trustworthiness (Zhou et al., 2023).

6.4.3.2 Trust

(1) Generalized and special trust

Generalized trust refers to villagers' perception of whether they generally trust others or believe that most people try to take advantage of them. Meanwhile, special trust measures trust in specific social relationships, including kinship, partnership, political and ideological relations, and with actors involved in COCL marketization, such as parents, group members, government officials, and religious representatives (Islam et al., 2006).

(2) Trust attitude

It mainly refers to the trust attitude that villagers develop towards the village committee through its implementation of COCL marketization. Three types of trust are summarized to operate at three different scales: macro, meso, and micro. The macro level analyzes institution-based trust, which examines the level of security institutional provisions and norms provide to villagers, thus facilitating their trust relationship with the village committee. At the meso level, emotion-based trust is used to understand the mutual relation between trust and dependency that evolves through frequent

interactions over time (Rousseau et al., 1998; Shapiro et al., 1992). Lastly, cognition-based trust at the micro level focuses on villagers' willingness to trust, based on their perceptions and risk assessments of the village committee (Doney et al., 1998; McAllister, 1995; Rousseau et al., 1998; Shapiro et al., 1992)

(3) Trustful behavior

We established various contexts, such as social environment, land system, product, investment, and speculation, to examine how subjective factors, such as personal characteristics and behavioral preferences, infer the likelihood of villagers committing behaviors and decisions of trust (Levin and Cross, 2004; Lyon, 2000; Ruben and Heras, 2012).

6.4.3.3 Cooperation performance

(1) Economic and social performance

The economic performance of COCL marketization aims to investigate whether villagers have benefited from it and whether their quality of life has been improved (Liang et al., 2015; Ruben and Heras, 2012). In contrast, the social performance of COCL marketization focuses on the emotional needs of the villagers, such as whether it has impacted their sense of security (Ma et al., 2015; van Gelder, 2010; Wang et al., 2013). By assessing both economic and social performance, a more comprehensive understanding of the outcomes of COCL marketization can be obtained.

(2) Risk

The risk assessment provides a subjective perspective on the villagers' performance and the effects of collective action (Anderson and Narus, 1990). While it

may not be possible to fully assess the subsequent impacts and outcomes of COCL marketization from its implementation or disruption, it is still necessary to predict the risks associated with the policy by understanding the villagers' assessment of the policy. The cooperation performance based on risk assessment includes an evaluation of this collective action and an outlook on the possibilities for future cooperation.

6.4.4 Modeling tools

The revised theoretical framework (Figure 6.2) was validated using a HSEM to construct an impact relationship for the voluntary collective action in COCL marketization through SPSS 26.0 and R programming language.

Structural equation modeling (SEM) is a fundamental and valuable method for evaluating complex causal relationships that were identified a priori in theory and literature (Rayamajhee and Bohara, 2021; Wan et al., 2021). In contrast to traditional statistical methods, which impose more restrictions on models (such as a single indicator only belonging to one variable or no multicollinearity among independent variables), SEM allows more resilient model settings to explain the relationships between variables through the covariance matrix characteristics of the sample information. In model specification, SEM allows for any theoretically possible correlation and measurement errors in independent variables, as well as the simultaneous handling of multiple dependent variables and both the measurement and structural relationships between factors within a single model. SEM is also a quantitative research technique that integrates measurement and analysis. It allows the relationship between observed variables and latent variables to be identified and shown

in the form of a path diagram instead of mathematical formulas.

HSEM extends the conventional SEM approach by allowing for meaningful conceptualization at a higher level of abstraction and can describe and assess the contribution of each variable to higher-level constructs (Koufteros et al., 2009). This is particularly beneficial for our study as it involves multifaceted constructs like social capital, trust, and cooperation performance, each comprising multiple dimensions. HSEM facilitates the encapsulation of these dimensions into broader constructs, thereby providing a nuanced understanding of their interrelations and collective impact on voluntary collective action.

In our HSEM application, social capital, trust, and cooperation performance are conceptualized as latent variables represented by multiple observed indicators. These latent constructs are then linked to form a hierarchical structure that reflects the theoretical underpinnings of our framework. Social capital is posited as a higher-order construct influencing trust, which in turn affects cooperation performance, delineating a mediation pathway in the model.

To specify our HSEM model, we delineate the relationships among variables and constructs based on theoretical assumptions and empirical evidence. This involves defining direct paths from social capital to trust and from trust to cooperation performance, as well as indirect paths encapsulating the mediating role of trust. Each path is accompanied by a standardized path coefficient, derived using the maximum likelihood estimation method, indicating the strength and significance of the relationships.

Furthermore, we have strengthened our model validation process by incorporating a two-step verification approach (Liu et al., 2020). Firstly, reliability is assessed through Cronbach's Alpha values to ensure internal consistency among indicators of each latent construct. The items indicate high internal consistency if they are highly correlated, which implies that each item measures the same concept. It follows that the questionnaires have a high level of reliability, and their measurements are reliable. Secondly, the Kaiser-Meyer-Olkin (KMO) measure is employed to evaluate the questionnaire's validity by examining the correlations among variables, ensuring their suitability for constructing an effective statistical model. In the case of a KMO measurement that is close to 1, it indicates that the variables have a high correlation, making it possible to establish a statistical model that supports the validity of the questionnaire. To address discriminant validity, the Fornell-Larcker criterion is employed, which necessitates that the square root of the Average Variance Extracted (AVE) for each construct should be greater than the construct's highest correlation with any other construct. This ensures that each construct is empirically distinct and captures phenomena not represented by other constructs in the model. The implementation of the Fornell-Larcker criterion substantiates the distinctiveness of our constructs, reinforcing the integrity and interpretability of our findings.

6.5 Results

Figure 6.4 and Table 6.1 display the results of the HSEM, which is used to observe the relationships between the latent variables and to test the empirical results and research hypotheses using p-values. Descriptive statistical analyses and reliability

and validity tests of the variables were conducted to ensure a comprehensive understanding of the data distribution, and to establish the consistency, stability, and accuracy of the measurement, as detailed in Appendix 6.B. The constructed HSEM model comprises eight first-order latent variables and three second-order latent variables. Multiple indicators from the questionnaire are used as observed variables, which are associated with their respective first-order latent variables. The eight first-order latent variables are each associated with their respective second-order latent variables, and causal relationships between the latent variables are tested through path analysis. The main related factors promote voluntary collective action are analyzed.

H1 is confirmed, illustrating that social capital significantly impacts trust, evidenced by a notable direct effect with a path coefficient of 0.95 ($p < 0.001$). This significant direct effect underscores the considerable influence of social capital—encompassing norms, networks, and trustworthiness—has on building trust within the context of COCL marketization. Specifically, the first-order SEM analysis reveals the path coefficients for the sub-dimensions of social capital to the higher-order construct: norms (path coefficient = 0.95, $p < 0.001$), networks (path coefficient = 0.31, $p < 0.05$), and trustworthiness (path coefficient = 0.98, $p < 0.001$). These values indicate that trustworthiness exert the strongest influence on social capital, followed by norms, while the impact of networks is comparatively lower yet still significant. In delineating the effects of social capital's sub-dimensions on voluntary collective action, it becomes evident that norms and perceptions of the trustworthiness of the village committee significantly shape the villager's trust, more so than their networks.

In the second-order SEM results, each sub-dimension's contribution of social capital to trust is further clarified. Trustworthiness (path coefficient = 0.93, $p < 0.001$) demonstrate a near one-to-one impact on trust, indicating that as the trustworthiness perceived in policy implementers aligned with collective action strengthen, trust proportionately increases. Norms also shows a robust relationship with trust (path coefficient = 0.90, $p < 0.001$), affirming that the social norms significantly contribute to trust levels. Networks, while showing a smaller effect size (path coefficient = 0.29, $p < 0.05$), suggest that the frequency and quality of social interactions still play a role in building trust. Collectively, these findings highlight the multifaceted nature of social capital and its pivotal role in cultivating trust among stakeholders in the rural land market. In the measurement model concerning sub-dimensions of social capital, we found that *sc_norm 1-5*, *sc_net 1-3*, *sc_tw 1-6* had significant effects ($p < 0.05$) on three sub-dimensions of social capital for norms, networks, and trustworthiness. Of these, *sc_norm 1-5* had the largest effect on social capital. Specifically, with the exception of *sc_norm 4*, the impact effects of *sc_norm 1-3,5* were above 90%, indicating that villagers' identification with the COCL objectives of the village committee was less influential than their evaluation of the village committee's implementation of the COCL marketization process. The results of *sc_net 1-3* for networks suggest that the contact frequency between villagers and their neighbors is more important than that with family members and village representatives, implying that the information of COCL marketization is conveyed more often to neighbors than to family members and village representatives. Additionally, the results of *sc_tw 1-6*,

used to measure trustworthiness, show that the impact of village committee is relatively greater for capability and less for benevolence and reputation.

H2 is affirmed, demonstrating that trust exerts a positive influence on cooperation performance, as evidenced by a direct effect with a path coefficient of 0.55 ($p < 0.001$) in the structural model. This indicates that a strong sense of trust within the community notably enhances cooperation in the context of COCL marketization. In the first-order SEM analysis, these significant coefficients demonstrate the degree to which each type of trust integrates into the broader concept of trust. Compared to the impact of trustful behavior on generating trust (coefficient of 0.23), the higher coefficients for generalized and special trust and trust attitude (0.88 and 0.87 respectively) emphasize the critical viewpoint that trust originates from these two sub-dimensions. In the second-order structural equation modeling, trust's sub-dimensions—generalized and special trust, trust attitude, and trustful behavior—are examined for their impact on cooperation performance. Generalized and special trust show path coefficients of 0.48 ($p < 0.001$), trust attitude indicates a coefficient of 0.47 ($p < 0.001$), and trustful behavior is somewhat less influential with a coefficient of 0.13 ($p < 0.05$), denoting that while all forms of trust contribute to cooperation, the trust stemming from generalized and special trust and trust attitude has a stronger association with the cooperative outcomes than trustful behavior. These findings underscore the idea that trust derived from these sub-dimensions is vital for enhancing cooperative behaviors among villagers, thereby significantly affecting the success of collective actions related to COCL marketization. The results reiterate the centrality of

trust in mediating the relationship between individual perceptions and collective action, reinforcing the importance of nurturing trust within rural communities for achieving the desired outcomes in land development initiatives. As for measurement model of trust, trust_g 1-3 have higher significant positive effects than trust_g 4-5, indicating that villagers' trust in kinship, partnership and political relations is a better facilitator of trust. Besides, the coefficients of indicators measuring trust attitude are more positive and significant than those measuring trust behavior, indicating a higher probability of trust attitude on trust.

H3 is substantiated, indicating that the influence of social capital on cooperation performance operates significantly through the mediating role of trust. The path analysis in the structural model reveals a mediated effect with trust displaying a substantial mediating path coefficient, illustrating the flow of impact from social capital to cooperation performance. Specifically, the path from social capital to trust is quantified with a strong coefficient (path coefficient = 0.95, $p < 0.001$), which then translates into a meaningful impact on cooperation performance with a mediating path coefficient of trust at 0.52 ($p < 0.001$). The mediated relationship is further confirmed, showing how trust serves as the conduit for the effects of social capital's sub-dimensions—norms, networks, and trustworthiness—on cooperation performance. The mediating role of trust is evident in the strong path coefficients from social capital to trust and from trust to cooperation performance, illustrating that trust not only absorbs and carries the influence of social capital but also significantly propels it towards cooperation performance. These findings elaborate on the dynamic

interaction between social capital and cooperation performance, highlighting trust as a critical intermediary that transforms the potential of social capital into tangible cooperative outcomes. This mediation underscores the necessity of fostering trust within communities to effectively leverage the benefits of social capital for enhancing cooperation performance in the context of COCL marketization. From the measurement model of cooperation performance, the coefficients for both economic performance and social performance indicators are highly significant, with a positive impact. However, the coefficients for the risk indicators, although both negatively significant, have different levels of impact. The higher coefficient of *cp_risk* 3-5 elaborates that villagers' sustaining satisfaction, coordinating efforts, and dependence in the future greatly influence the assessment results of risk in collective action.

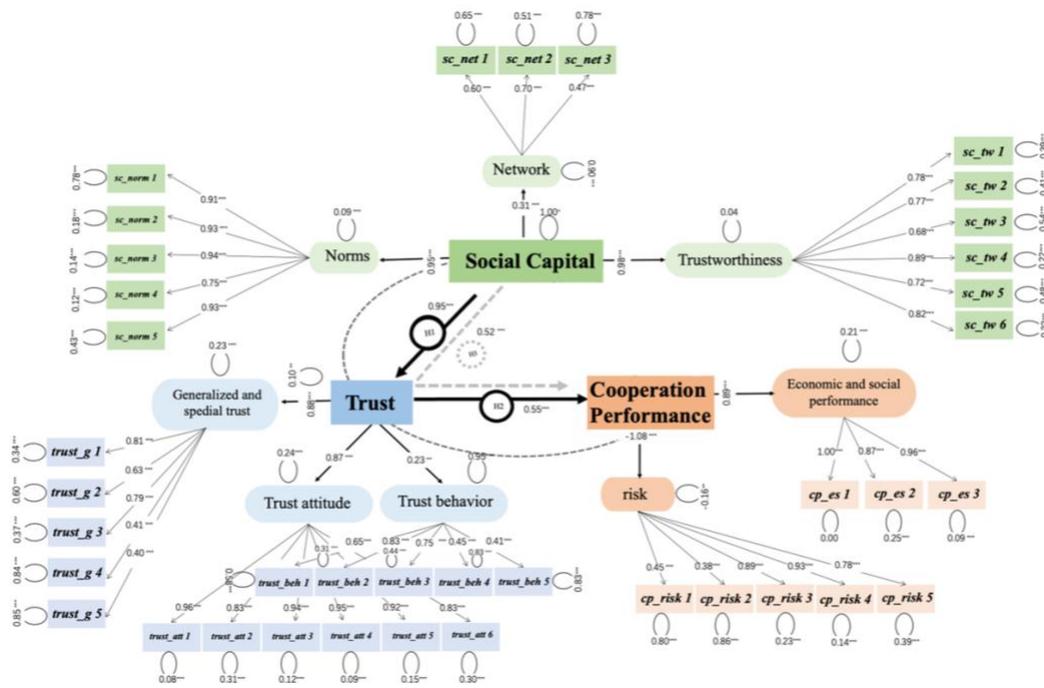


Figure 6.4. The higher-order structural equation modeling (HSEM) results.

Note: p=Significant Probability. *** represents $p < 0.01$, ** represents $p < 0.05$, and * represents $p < 0.1$.

Table 6.1. The estimated effects of variables.

Variable	Standardize d estimate	Estimat e	Std.Er r	z-value	P(> z)
Norms=					
<i>sc_norm 1</i>	0.905	1.000	-	-	-
<i>sc_norm 2</i>	0.927	1.058	0.037	28.371	0.000
<i>sc_norm 3</i>	0.940	1.108	0.037	29.592	0.000
<i>sc_norm 4</i>	0.754	1.110	0.062	17.841	0.000
<i>sc_norm 5</i>	0.925	1.097	0.039	28.210	0.000
Networks =					
<i>sc_net 1</i>	0.595	1.000	-	-	-
<i>sc_net 2</i>	0.702	1.105	0.197	5.600	0.000
<i>sc_net 3</i>	0.465	0.917	0.164	5.572	0.000
Trustworthiness=					
<i>sc_tw 1</i>	0.782	1.000	-	-	-

<i>sc_tw 2</i>	0.768	1.144	0.076	15.079	0.000
<i>sc_tw 3</i>	0.676	1.187	0.092	12.919	0.000
<i>sc_tw 4</i>	0.885	1.015	0.056	18.158	0.000
<i>sc_tw 5</i>	0.722	1.167	0.084	13.970	0.000
<i>sc_tw 6</i>	0.824	1.120	0.068	16.511	0.000
SocialCapital =~					
Networks	0.311	1.000	-	-	-
Norms	0.952	1.971	0.494	3.986	0.000
Trustworthiness	0.981	1.849	0.468	3.949	0.000
Generalized and special					
trust =~					
<i>trust_g 1</i>	0.392	0.607	0.090	6.769	0.000
<i>trust_g 2</i>	0.812	1.000	-	-	-
<i>trust_g 3</i>	0.634	1.175	0.102	11.490	0.000
<i>trust_g 4</i>	0.793	0.991	0.067	14.886	0.000
<i>trust_g 5</i>	0.407	1.095	0.156	7.021	0.000
TrustAttitude =~					
<i>trust_att 1</i>	0.960	1.000	-	-	-
<i>trust_att 2</i>	0.834	0.854	0.035	24.182	0.000
<i>trust_att 3</i>	0.937	0.932	0.025	37.274	0.000
<i>trust_att 4</i>	0.952	0.955	0.024	40.288	0.000

<i>trust_att 5</i>	0.924	0.994	0.028	34.915	0.000
<i>trust_att 6</i>	0.834	0.966	0.040	24.373	0.000
TrustfulBehavior =~					
<i>trust_beh 1</i>	0.645	1.000	-	-	-
<i>trust_beh 2</i>	0.828	1.308	0.124	10.554	0.000
<i>trust_beh 3</i>	0.747	1.077	0.104	10.333	0.000
<i>trust_beh 4</i>	0.445	0.744	0.109	6.837	0.000
<i>trust_beh 5</i>	0.411	0.655	0.103	6.360	0.000
Trust =~					
Generalized and special					
trust	0.880	1.000	-	-	-
TrustAttitude	0.873	1.106	0.076	14.578	0.000
TrustfulBehavr	0.226	0.408	0.120	3.415	0.001
Risk =~					
<i>cp_risk 1</i>	0.450	1.000	-	-	-
<i>cp_risk 2</i>	0.379	1.092	0.136	8.012	0.000
<i>cp_risk 3</i>	0.878	1.817	0.212	8.578	0.000
<i>cp_risk 4</i>	0.930	2.375	0.272	8.721	0.000
<i>cp_risk 5</i>	0.779	1.362	0.165	8.243	0.000
Economic and social					
cooperation =~					
<i>cp_es 1</i>	0.999	1.024	0.019	53.077	0.000

<i>cp_es 2</i>	0.865	1.001	0.024	41.631	0.000
<i>cp_es 3</i>	0.955	1.000	-	-	-
Cooperation Performance					
≈					
Economic and social cooperation	0.892	1.000	-	-	-
Risk	-1.078	-0.467	0.057	-8.171	0.000

6.6 Discussion

Despite the abundant literature on the dilemmas of collective action in RLD (Bao et al., 2022; Wang and Wang, 2022), many of these studies primarily consider top-level institutional designs or high-power hierarchies, such as institutions or governments in search of a breakthrough to solve the dilemma of collective action, resulting in the role of villagers being neglected. In this paper, a revised theoretical framework for understanding voluntary collective action in RLD has been developed and tested using a field survey of Jiangsu province in China. The analytical approach relies on a HSEM.

The results provide an answer to the research question. Firstly, our revised model of collective action is argued to provide a better measurement tool than the existing and revised models by Ostrom. Like Ostrom's findings, our study emphasizes that it is through trust that voluntary collective action can be created in which people are willing to work together to promote RLD. However, unlike Ostrom's work, our research highlights the significant impact of potential risks to institutional credibility and

effective policy implementation on achieving collective action. Secondly, voluntary collective action in RLD is measured through a joint analysis of social capital, trust, and cooperation performance, all within a refined second-generation collective action theoretical framework. Our findings also indicate that social capital can be measured through norms, networks, and trustworthiness, that trust can be analyzed by generalized and special trust, trust attitude, and trustful behavior, that cooperation performance can be described by economic and social performance, and risk assessment. A set of 36 indicators has been proposed to make them observable. Thirdly, we characterize voluntary collective action in our study by validating the theoretical hypothesis regarding the interplay between social capital, trust, and cooperation performance. This not only clarifies but also substantiates the unique advantages and challenges of intentional, organized, and structured collective participation in fostering sustainable community-led initiatives, resonating well with established collective action theories. It is elaborated through the following four findings.

a. Social capital has a positive effect on trust, as it effectively promotes villagers' trust in policy implementers by means of establishing new institutions to regulate participants' behavior, increasing the trustworthiness of key actors, and improving channels of information and knowledge exchange, but the first two means are more effective than the latter.

b. The effect of trust on cooperation performance is positively significant. As opposed to villagers' behavioral preference, the construction of villagers' trust in policy implementers has more to do with their trusting relationships with particular groups and

the credible behavior of policy implementers, which in turn affects the outcome of collective action.

c. That negative impact of risk on cooperation performance reminds policy implementers to pay attention to the potential risks to institutional credibility and future policy implementation, especially the villagers' insights on sustainability satisfaction, coordinating efforts, and dependence in the future, whose impacts on risk are significant.

d. While the direct effect of social capital on cooperation performance is not statistically significant, trust serves as a pivotal mediating variable, elucidating the indirect positive impact of social capital on cooperation performance.

These findings provide policy implications for facilitating voluntary collective action in COCL marketization in China. Although villagers represented by collective economic organizations exercise ownership of the COCL, they need to be given more attention when it comes to examining strategies to break the dilemma of collective action of RLD. As found in this study, they are involved in collective action through social capital and play an important role. For example, villagers' perception of norms, their evaluation of the trustworthiness of policy implementers, and their social networks, all act as conditions of collective action and influence coordinated behavior in RLD. Given the HSEM results, the effect of social capital on cooperation performance is moderated through trust, which is an important finding for policy implementers and therefore it reminds them of the need to build partnerships in hierarchical RLD. During the COCL marketization process, policy implementers should first prioritize behavioral norms in RLD practice, and enhance their trustworthiness from the aspects of ability

and integrity, thereby increasing villagers' trust in them. Meanwhile, fairness, openness, and sharing in policy implementation should be promoted through the introduction of third-party agencies, the establishment of information-sharing mechanisms, the simplification of administrative procedures, and the provision of cost-benefit sharing. A platform for conflict resolution can also be provided by monitoring and penalizing irregularities, contributing to a level playing field for multi-stakeholder negotiations. Incentives such as subsidies and tax incentives for self-organizing behavior can encourage landowners to develop cooperative alliances and initiate the implementation of COCL marketization, thereby reducing transaction costs.

Although the empirical results are robust and reliable, there are still some limitations that can guide our future research. The first one is that the sample size could be further expanded to test the robustness of the findings. Secondly, sample studies of time-series variation and individual differences could be considered to provide more compelling evidence for the inquiry into breaking the collective action dilemma of RLD. Additionally, while Jiangsu Province provides a critical case study due to its advanced rural development and land management practices, future studies should include diverse geographical regions within China to ensure broader applicability and generalizability of the findings. Future research also needs to examine RLD cases from more countries to verify the scientific validity of our theoretical framework of voluntary collective action as well as enrich collective action theory.

Appendix 6.A. Variable Descriptions

Table 6.A1. Description of variables for social capital, trust, and cooperation

performance.

No.	Factor	Variable		Indicators
<i>Social capital</i>				
<i>sc_norm 1</i>	Norms (Macro level): Cognitive dimension	Institutional norms		The Village Committee did a good job in the confirmation and registration of land property right.
<i>sc_norm 2</i>				The Village Committee did a good job in the public trading session.
<i>sc_norm 3</i>				The Village Committee did a good job in regulating land development and use.
<i>sc_norm 4</i>		Strategic goals		Villagers identify with the COCL marketization objectives of the village committee.
<i>sc_norm 5</i>				Villagers identify with the governance of the village committee.
<i>sc_net 1</i>	Networks (Meso level): Structural dimension	Contact person and contact frequency	Average contact frequency of villagers with family members	
<i>sc_net 2</i>			Contact frequency of villagers with neighbors	
<i>sc_net 3</i>			Contact frequency of villagers with village representatives	
<i>sc_tw 1</i>	Trustworth	Trust	Integrity	The Village Committee informs you in a public way.

<i>sc_tw 2</i>	hiness (Micro level): Relational dimension	worthi	Benevole	The Village Committee respects the views of villagers when they are not accepted by them.
<i>sc_tw 3</i>		ness		nce
<i>sc_tw 4</i>		of	Capabilit	The Village Committee has the ability to make the right decision.
<i>sc_tw 5</i>		policy		y
<i>sc_tw 6</i>		imple	Willingness to share information	The Village Committee is able to share COCL marketization information selflessly.
		mente		rs

Trust

<i>trust_g 1</i>	Generalize d and special trust	Kinship	Parents are always reliable
<i>trust_g 2</i>		Partnership	Village group members are always reliable
<i>trust_g 3</i>		Political Relation	County government officials are always reliable
<i>trust_g 4</i>		Ideological relation	The representative of the religion is always reliable
<i>trust_g 5</i>		Generally speaking, when I socialize with others, I (0= should be very careful; 1= don't know; 2=trust most people)	
<i>trust_att 1</i>	Trust attitude	Macro level: Institution-based trust	The village committee will sign a contract with you

<i>trust_att 2</i>			The Village Committee communicate with you regularly
<i>trust_att 3</i>		Meso level: Emotion-based trust	The Village Committee explains the situation in detail if you are unsure about COCL marketization
<i>trust_att 4</i>			The Village Committee invites village representatives to give their views at COCL marketization discussion meetings
<i>trust_att 5</i>		Micro level: Cognition-based trust	Efficient implementations by the village committees after the contract is signed
<i>trust_att 6</i>			The commitments previously agreed between the village committee, and you have not been subsequently adjusted
<i>trust_beh 1</i>	Trustful behavior	Social environment	My region is a poor area, it is difficult to become rich if I don't take risk.
<i>trust_beh 2</i>		Land system	I feel my land property right is uncertain because land reallocation, it has effect on the investment in my land.
<i>trust_beh 3</i>		Product	I never plant a new type of crop as the first one in the village, because it is too risky.
<i>trust_beh 4</i>		Investment	If I find an investment may make a big profit, I will borrow money to invest it even it may lose money.
<i>trust_beh</i>		Speculation	I like to buy all kinds of lotteries if I have enough

5			money, because I can earn a lot of money if I am lucky.
<i>Cooperation performance</i>			
<i>cp_es 1</i>	Economic and social performance	Economic performance	You profit from COCL marketization
<i>cp_es 2</i>			To what extent do you think the subsidy from the reform improve the quality of life of your household? (1=No change, 2=Not much change, 3=Not sure, 4=Some change, 5=Much change)
<i>cp_es 3</i>			Do you think this income from the allowance gives you security? (1 = Strongly disagree, 2 = Disagree, 3 = Not sure, 4 = Agree, 5 = Fully agree)
<i>cp_risk 1</i>	Risk assessment	Overall assessment	The land policy reform has gone very well
<i>cp_risk 2</i>			The village committee did not need to spend a lot of time on mediation work
<i>cp_risk 3</i>		Sustaining satisfaction	You support COCL marketization in your village
<i>cp_risk 4</i>		Coordinating efforts	The Village Committee has largely fulfilled your hopes for COCL marketization
<i>cp_risk 5</i>		Dependence in the future	You will continue to support the relevant policies of the village if you encounter similar situations in the future

Appendix 6.B. Preliminary Statistical Analysis and Validation of Variables

Table 6.B1. Descriptive statistics of the variables of the revised collective action framework

Variable	Unique	Mean	SD	Min	Median	Max	Histogram	Variable	Unique	Mean	SD	Min	Median	Max	Histogram
<i>sc_net 1</i>	6	4.42	1.23	0	5	5		<i>trust_att 1</i>	4	4.64	0.61	2	5	5	
<i>sc_net 2</i>	6	4.47	1.15	0	5	5		<i>trust_att 2</i>	4	4.62	0.60	2	5	5	
<i>sc_net 3</i>	6	2.91	1.44	0	3	5		<i>trust_att 3</i>	4	4.62	0.58	2	5	5	
<i>sc_norm 1</i>	3	4.73	0.52	3	5	5		<i>trust_att 4</i>	4	4.64	0.59	2	5	5	
<i>sc_norm 2</i>	3	4.72	0.54	3	5	5		<i>trust_att 5</i>	4	4.64	0.63	2	5	5	
<i>sc_norm 3</i>	3	4.67	0.56	3	5	5		<i>trust_att 6</i>	4	4.58	0.67	2	5	5	
<i>sc_norm 4</i>	4	4.64	0.69	1	5	5		<i>trust_beh 1</i>	5	3.33	1.29	1	4	5	
<i>sc_norm 5</i>	3	4.70	0.56	3	5	5		<i>trust_beh 2</i>	5	3.04	1.31	1	3	5	
<i>sc_tw 1</i>	4	4.72	0.55	2	5	5		<i>trust_beh 3</i>	5	3.30	1.20	1	3	5	
<i>sc_tw 2</i>	4	4.57	0.64	1	5	5		<i>trust_beh 4</i>	5	2.76	1.39	1	3	5	
<i>sc_tw 3</i>	4	4.59	0.75	1	5	5		<i>trust_beh 5</i>	5	2.02	1.32	1	1	5	
<i>sc_tw 4</i>	3	4.72	0.49	3	5	5		<i>cp_es 1</i>	5	4.35	0.96	1	5	5	
<i>sc_tw 5</i>	5	4.64	0.69	1	5	5		<i>cp_es 2</i>	5	4.27	1.08	1	5	5	
<i>sc_tw 6</i>	3	4.60	0.58	3	5	5		<i>cp_es 3</i>	5	4.32	0.98	1	5	5	
<i>trust_g 1</i>	4	4.69	0.64	2	5	5		<i>cp_risk 1</i>	5	1.55	0.8	1	1	5	
<i>trust_g 2</i>	5	4.14	0.97	1	4	5		<i>cp_risk 2</i>	5	1.74	1.04	1	1	5	
<i>trust_g 3</i>	4	4.60	0.65	2	5	5		<i>cp_risk 3</i>	5	1.54	0.75	1	1	5	
<i>trust_g 4</i>	5	3.60	1.40	1	4	5		<i>cp_risk 4</i>	5	1.64	0.92	1	1	5	
<i>trust_g 5</i>	3	2.75	0.81	0	3	3		<i>cp_risk 5</i>	3	1.48	0.63	1	1	5	

Notes: Table B1 provides a summary of the statistical characteristics for each variable, including means, standard deviations, and range values. Histogram analysis reveals that variables related to social capital generally show high mean values, with an exception for *sc_net 3*, suggesting lower interaction frequency with village representatives. Network variables exhibit greater dispersion compared to norms and trustworthiness variables. Trust-related variables indicate a cautious approach among villagers towards risk-taking, with notable variations in trust levels across different entities involved in COCL marketization. The analysis of cooperation performance variables underscores the positive impacts of COCL marketization, highlighting effective collective action and enhanced community well-being.

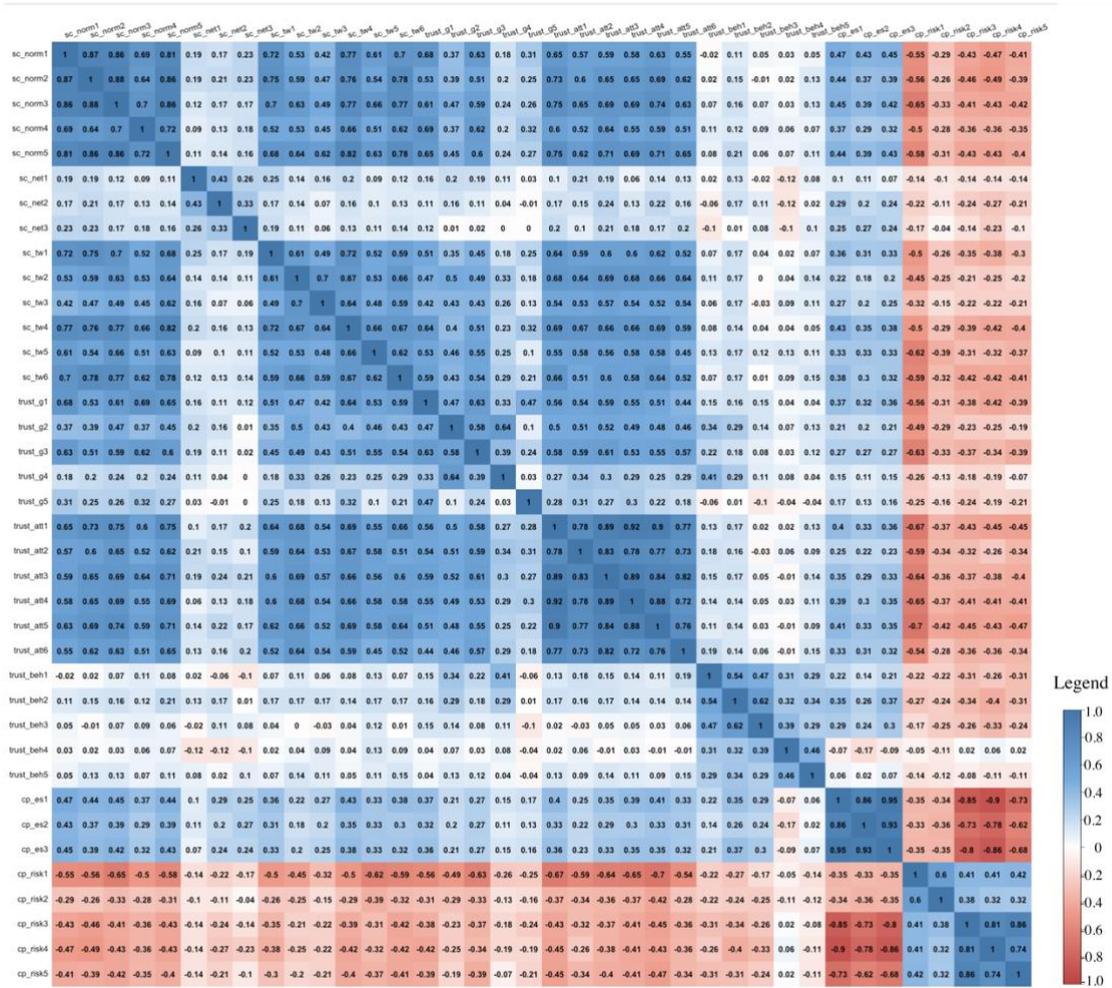


Figure 6.B1. Correlation between the constructs of social capital, trust, and cooperation performance. (Notes: The matrix visualizes positive correlations in blue, negative in red, with intensity indicating strength. The axes represent variables related to social capital, trust, and cooperation performance, showcasing pairwise Kendall's coefficients. Notably, risk variables (cp_risk) predominantly display negative correlations (in red), contrasting with the predominantly positive correlations (in blue) among other variables. Intra-variable correlations, particularly for norms, networks, trust metrics, and performance indicators, demonstrate stronger associations, with coefficients generally above 0.5. Cross-variable analysis reveals significant positive correlations among norms, trustworthiness, and trust attitudes, and notable negative correlations between

performance metrics and risk. Correlations mostly remain below 0.7, aligning with the HSEM model's framework without hindering its construction.)

Table 6.B2. Reliability and validity tests for variables.

Second-order factor	First-order factor	Observed variable	Cronbach's Alpha	KMO
Social capital	Norms	<i>sc_norm 1-5</i>	0.950	0.889
	Networks	<i>sc_net 1-3</i>	0.703	0.615
	Trustworthiness	<i>sc_tw 1-6</i>	0.903	0.877
Trust	Generalized and special trust	<i>trust_g 1-5</i>	0.760	0.700
	Trust attitude	<i>trust_att 1-6</i>	0.965	0.901
	Trustful behavior	<i>trust_beh 1-5</i>	0.771	0.753
Cooperation performance	Economic and social cooperation	<i>cp_es 1-3</i>	0.970	0.684
	Risk	<i>cp_risk 1-5</i>	0.849	0.748

Notes: Reliability refers to the consistency and stability of the tested variables, while validity suggests a meaningful correlation among the variables, foundational for constructing a valid statistical model. A value above 0.7 Cronbach's Alpha indicates good reliability and a value above 0.5 KMO indicates good validity.

Table 6.B3. Discriminant validity: Fornell-Larcker criterion.

Construct	Norms	Trustworthiness	Networks	Generalized and Special Trust	Trust Attitude	Trustful Behavior	Risk	Economic and social cooperation
Norms	0.88							
Trustworthiness	0.73	0.77						
Networks	0.3	0.31	0.61					
Generalized and Special Trust	0.79	0.72	0.26	0.61				
Trust Attitude	0.79	0.71	0.26	0.46	0.91			
Trustful Behavior	0.2	0.21	0.07	0.20	0.20	0.63		
Risk	-0.53	-0.54	-0.17	-0.51	-0.52	-0.13	0.70	
Economic and social cooperation	0.44	0.45	0.14	0.43	0.43	0.11	0.50	0.94

Note: The diagonal elements (bolded) are the square root of average variance extracted (AVE). Off-diagonal elements are the correlations among constructs. According to the Fornell-Larcker criterion for assessing discriminant validity, the square root of the average variance extracted (AVE) for each construct (the values on the diagonal) must be greater than the correlation between that construct and any other construct (the non-diagonal values in the corresponding columns). This Table indicates that no discriminate validity issues exist.

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CHAPTER

7

Chapter 7. Conclusion

7.1 Main Findings and Reflections

This thesis comprehensively addresses its **overarching objective** by elucidating how stakeholders in rural China collectively manage land through a combined approach of theoretical exploration, methodological innovation, and empirical analysis. First, it revises and applies Elinor Ostrom's collective action theory to modern land management challenges. Second, this work lies in the development and validation of a set of indicators assessing social capital, trust, and cooperation performance, enhancing the empirical study of land policy reform. Third, extensive fieldwork across various Chinese regions offers deep insights into stakeholder roles and networks, the impact of social capital on collective action, and the effectiveness of voluntary collective action in land management.

Chapter 2 presents a comprehensive analysis of collective action in land marketization, focusing on the nuanced roles of social capital, trust, and cooperation performance in the context of China's market-based land reform. This chapter addresses **the first research objective (RO1)** by identifying a unique 'social capital – trust - cooperation performance' theoretical framework as most appropriate for evaluating stakeholder behavior in collectively owned land tenure. The findings of Chapter 2 insightfully explore the multifaceted nature of social capital, the evolving concept of trust, and the complexity in evaluating cooperative performance. Addressing **RQ1**, the study underscores the importance of focusing on collective action in the marketization

of collectively owned land tenure. It reveals how social rationality, often neglected, plays a pivotal role in aligning individual and collective interests, thus facilitating market-oriented processes. For **RQ2**, the research identifies crucial elements such as trust and social capital that significantly facilitate collective action. It demonstrates how these elements, when effectively leveraged, can enhance cooperative endeavors among stakeholders. In response to **RQ3**, this chapter innovatively articulates how relationships between key elements—social capital, trust, and cooperation performance—can be constructed and strengthened within the land marketization framework. This involves an in-depth analysis of how trust between various stakeholders, especially between villagers and the government, can be fostered to improve land economic activities. The chapter's findings and theoretical advancements offer valuable insights for countries grappling with similar collective action challenges in land policy implementation, particularly those in developing regions with transitional land tenure systems.

Chapter 3 aligns with **the second research objective (RO2)** by developing and implementing a comprehensive set of indicators that provide vital methodological guidance for future empirical analysis in collective action, particularly within land management practices. The chapter introduces a novel set of indicators specifically designed to measure and elucidate the dynamics of social capital, trust, and cooperation performance, thereby addressing **RQ4**. These indicators, grounded in the theoretical frameworks of social exchange and transaction cost theories, offer a multifaceted perspective on the elements influencing collective action in land management. In

response to **RQ5**, the chapter highlights the versatility and applicability of these indicators across diverse international contexts, ensuring their scientific effectiveness and relevance, especially in the setting of developing countries. This adaptability makes the indicators practical tools for empirical research in various land ownership systems, thereby significantly contributing to a deeper and more nuanced understanding of land policy reform dynamics.

In alignment with **the third research objective (RO3)**, Chapter 4-6 presents an empirical analysis through case studies in China, addressing the intricacies of interest disputes and the facilitation of voluntary collective action for sustainable, effective, and responsible land development.

Chapter 4 responds to **RQ6** by conducting an in-depth exploration of the roles of stakeholders within their social relationship networks in the context of COCL marketization in China. The chapter employs social network analysis (SNA) and semi-structured interviews, revealing a complex network comprising district-level departments, township-level organizations, village-level actors, and news media institutions in Langfa, Beijing. The analysis emphasizes the significant influence of township-level organizations and the marginalization of village-level actors. It underscores the essential mediating roles of township organizations and village committees and stresses the importance of increasing villager involvement in communicative networks, which is crucial for fostering collaboration and addressing conflicts, thereby ensuring more inclusive and balanced stakeholder engagement.

Chapter 5, addressing **RQ7**, delves into the collective action dilemmas encountered

in COCL marketization. By examining social capital elements — norms, networks, trustworthiness — and their interplay with trust in Dingluan Town, Henan Province, this chapter reveals that villagers' limited awareness of COCL policies breeds mistrust and hampers collective action. The study underscores the role of communication networks in enabling effective information exchange and coordination among stakeholders. It also finds that trustworthiness, determined by the perceived competence and integrity of key actors, acts as a mediator between norms and trust, affecting land transaction participation. The results point to three dilemmas regarding land marketization in rural China and highlight trust as a pivotal factor to address these collective action challenges.

Chapter 6 fulfills **RQ8** by defining, measuring, and characterizing voluntary collective action in the context of Rural Land Development (RLD). The revised framework of voluntary collective action, centered on trust, emerges as a more effective tool than existing frameworks. The results confirm the positive influence of social capital on trust and, subsequently, on cooperation performance. The study also highlights the indirect positive impact of social capital on cooperation performance, mediated by trust, providing a deeper understanding of the dynamics of collective action in RLD. The findings from Chapter 6 extend the scope of collective action theory, providing a refined lens for understanding and enhancing land development practices both within China and in a broader global context.

The reflection on the main findings from Chapters 2 to 6 reveals a progressive deepening of understanding regarding collective action in land marketization. Chapter

2 introduces a theoretical framework that emphasizes the synergy between social capital, trust, and cooperation performance, setting the stage for subsequent empirical exploration. This framework is crucial for understanding the underpinnings of collective action and offers innovative pathways to resolve marketization dilemmas, particularly in developing contexts like China. Chapter 3 builds upon this by operationalizing the theoretical constructs into measurable indicators, enriching the methodological approaches for studying land policy reform. These indicators provide a robust platform for empirical analysis, enabling a more nuanced examination of the collective action. In Chapter 4, the application of social network analysis offers a granular view of the communicative roles of stakeholders in COCL marketization, revealing the critical positions of township-level organizations and the marginalization of villagers. This highlights the importance of inclusive communication networks in facilitating marketization processes. Chapter 5 further examines the intricacies of collective action dilemmas, identifying cognitive biases, challenges in stakeholder expression, and trust crises as core issues. It underscores the pivotal role of trust in navigating these dilemmas. Finally, Chapter 6 characterizes voluntary collective action through a revised theoretical lens, validating the importance of trust in successful RLD. The interlinkage between social capital and cooperation performance, mediated by trust, provides a comprehensive understanding of voluntary collective action efficacy. In summary, this work underscores the importance of integrating social dynamics into land policy reforms to address collective action challenges effectively.

7.2 General Conclusions and Policy Implications

The comprehensive analysis spanning Chapters 2 to 6 culminates in several key conclusions. It underscores the significance of communication networks, social capital, and trust and in enhancing collective action in rural land development. The innovative 'social capital-trust-cooperation performance' framework offers a new lens for examining and addressing collective action dilemmas. Methodological advancements in indicator development provide robust tools for empirical analysis across diverse land management contexts. Crucially, the research stresses the importance of engaging village-level stakeholders and ensuring transparent, accountable, and inclusive policy processes to enhance cooperation and effective land marketization, especially in countries with informal and inequitable land management practices. The policy implications derived from the study are multi-faceted, offering a range of strategies to address the challenges identified in land management.

Empowering Village-Level Decision-Making. The findings suggest a need for empowering villagers with decision-making capabilities, which could involve participatory approaches to policy development. By doing so, the policy-making process becomes more inclusive, ensuring that the interests and insights of the collective property owners are directly reflected in the outcomes. This could be implemented through local assemblies or digital platforms that allow for voting and discussion on key land management issues.

Building Trust through Transparency and Accountability. The importance of trust highlighted in the findings calls for mechanisms that enhance transparency and accountability. This could involve creating digital dashboards that track the progress of

land transactions and policy impacts, making this information accessible to all stakeholders. Such tools could also be used to showcase how feedback from landowners is being addressed by policymakers.

Strengthening Communication Networks. The findings indicate the pivotal role of communication networks in COCL marketization. To improve this, innovative communication strategies such as social media outreach, community forums, and regular public briefings could be implemented to ensure that stakeholders are well-informed and can actively participate in the marketization process.

Integrating Social Capital in Policy Design. Recognizing the role of social capital, policies could be crafted to utilize existing social networks and norms to foster cooperation. For example, local community leaders could be enlisted to disseminate information and gather feedback, using their social influence to bridge the gap between policy implementers and landowners.

Incentivizing Collaborative Initiatives. The findings underscore the potential of cooperative performance to facilitate collective action. In response, policies could offer incentives for collaborative initiatives that align individual and collective benefits. This might include tax breaks or subsidies for groups that engage in sustainable land management practices or create joint ventures that contribute to the COCL marketization objectives.

These implications aim to harness technology, decentralization, and the existing social fabric to foster a more inclusive and responsive land marketization process.

7.3 Novelty and Scientific Contribution

The thesis presents several novel contributions to academic research and practical applications in land management and policy design.

Theoretically, this research builds upon Elinor Ostrom's groundbreaking work, reframing her collective action theory to align with contemporary land management challenges. This study complements existing literature to integrate a multidimensional framework linking social capital, trust, and cooperation performance, thereby deepening theoretical underpinnings in public administration and governance, with a direct influence on land reform policy design.

Methodologically, the research pioneers with an indicator design for measuring and evaluating social capital, trust, and cooperation performance in land management. It emphasizes the role of these factors in successful land policy reform, thereby opening new avenues for academic inquiry within public administration and governance. The amalgamation of qualitative and quantitative methods through questionnaires, interviews, and social network analysis offers a nuanced understanding of stakeholder dynamics. The methodological rigor is bolstered using HSEM, a cutting-edge approach that meticulously dissects the intricacies of collective action.

Empirically, this study is grounded in thorough fieldwork across three diverse cases in Beijing, Henan, and Jiangsu, suggesting the need for improved communication networks, transparent distribution of proceeds, and enhanced professional capacity of government bodies. The study's findings have significant implications for the development of more inclusive and effective land management policies, providing evidence-based strategies for enhancing stakeholder engagement, improving

transparency, and fostering trust within land management practices.

Disciplinarily, the thesis traverses land administration, land sociology, agricultural sociology, and social psychology, enhancing its academic impact and potential to influence policy and governance on a broader scale. The integration of these domains showcases a multifaceted view of land reforms, extending the reach of this research beyond China's reforms to global land management practices.

7.4 Limitations of the Study

Literature Constraints. The literature review process was subject to individual bias, potentially overlooking critical studies. Despite efforts to aggregate findings across various fields, it's possible that not all relevant literature was captured. Future research should incorporate systematic review software (advanced data mining and natural language processing techniques) and interdisciplinary databases to enhance the scope and diversity of literature considered, ensuring a more holistic and unbiased selection process.

Data Collection Challenges. The COVID-19 pandemic has imposed practical limitations on data collection, possibly impacting the representativeness and depth of empirical evidence. Subsequent research should leverage a mixed-methods approach, combining quantitative models and in-depth qualitative surveys and unveiling new dynamics in stakeholder engagement through digital platforms, to overcome data collection challenges posed by such unprecedented global events.

Disciplinary Integration. The research traversed the terrains of land management, public administration, and social psychology, facing the inherent challenge of

integrating diverse terminologies and conceptual frameworks into a coherent study. This interdisciplinary approach demanded a delicate balance to ensure the integration of concepts remained coherent and germane to the research aims. Subsequent research should focus on developing integrative models that transcend disciplinary boundaries, enabling a seamless fusion of concepts and methodologies for a more comprehensive analysis.

Empirical Research and Pilot Study Particularity. While the empirical evidence provided is robust, it is constrained by the limited diversity in the dataset. The empirical research on pilot study areas in land management highlighted the need for comparative analyses across different environments to understand the complexities of land marketization processes. Future research should aim to broaden its scope, incorporating diverse geographical and socio-cultural contexts to gain a comprehensive understanding of collective action's effectiveness in land policy reform. It should prioritize expanding sample sizes, conducting time-series analyses, and delving into individual stakeholder profiles to enhance the robustness and depth of the findings. Additionally, comparing marketization mechanisms across various regions and countries will be crucial in testing the framework's applicability and contributing to the enrichment of collective action theory.

7.5 Recommendations for Future Research

7.5.1 Recommendations Within Main Research Objective

Exploring Multidimensional Trust Mechanisms. The complexity of land management contributes to examining the multidimensional aspects of trust. Given the

diverse cultural and institutional landscapes, there's a pressing need to dissect trust into its multiple dimensions, examining factors like cultural norms, historical contexts, and institutional credibility. This exploration can reveal how these trust dimensions interact and influence collective action in land management.

Longitudinal Studies on Trust and Policy Impact. In many cases, trust in land management is assumed to be static, neglecting its dynamic nature over time, especially in response to policy shifts. Conducting longitudinal studies to observe the evolution of trust over time in response to policy changes would provide valuable insights. These studies could track how trust develops or erodes in different phases of land management processes and how this impacts policy adherence and effectiveness.

Cross-Cultural Comparative Studies. The understanding of collective action and trust in land management is often limited to specific cultural contexts, leaving a gap in comparative knowledge. Comparative studies in different cultural and socio-economic contexts, especially contrasting rural and urban settings or comparing different countries, would deepen the understanding of collective action dynamics. Such studies could unveil how trust and collective action manifest differently in various contexts and what lessons can be learned and applied globally.

7.5.2 Recommendations Beyond Main Research Objective

Technology and Land Management Efficacy. While the potential of technology in land management is recognized, its practical application remains underexplored. Investigating the role of advanced technologies like AI, GIS, and blockchain in enhancing land management practices can help bridge the gap between theoretical

potential and practical utility. Studies could focus on how these technologies can aid in better mapping, monitoring, and managing land resources, improving transparency and stakeholder engagement.

Sustainable Practices in Informal Land Markets. The prevalence of informal land markets often leads to unregulated and unsustainable practices. Researching sustainable practices within informal land markets would provide insights into how informal systems can be integrated into formal policies. This research can explore how informal practices contribute to or detract from sustainable land management and what policy interventions can bridge the gap.

Impact of Climate Change on Collective Land Management. The increasing effects of climate change on land management practices are still an emerging area of study. Examining the impact of climate-related challenges on collective decision-making and the development of adaptive strategies is essential for creating resilient land management practices that can navigate and mitigate the effects of climate variability and change.

Gender Dynamics in Land Management. Despite growing awareness, the role of gender in land management, especially in collective decision-making, remains under-researched. Future research should focus on how gender roles, relations, and perceptions shape land policy formulation and implementation, examining the diverse experiences and contributions of different genders in land use, ownership disputes, and marketization processes. It's essential to explore the intersection of gender with other social factors like class, ethnicity, and age in land management. By illuminating the

diverse ways in which women and men engage with and are affected by land management policies, research in this area can facilitate the crafting of equitable land reform strategies that recognize and cater to the needs and rights of all genders, thereby contributing to sustainable and just land governance.

Impact of Community Heterogeneity on Cooperation. The challenge of fostering cooperative behavior is closely tied to community characteristics, with key factors being social-racial diversity, economic disparities, and community scale. Academic inquiries in this direction are to meticulously assess how heterogeneity within communities modulates collective action, utilizing comparative analyses across diverse community settings. This scholarly endeavor is pivotal for devising nuanced and effective strategies tailored to the unique characteristics of varied community contexts, thereby fostering enhanced cooperative engagement in land management and diverse communal activities.

7.5.3 Recommendations for Practitioners

Developing Community Engagement Frameworks. Land management decisions are often made without adequate community involvement, leading to resistance and inefficacy. Practitioners should develop frameworks that facilitate inclusive decision-making in land management. Such frameworks should encourage participatory approaches, ensuring diverse stakeholder voices are heard, particularly at the grassroots level.

Implementing Transparent and Accountable Mechanisms. A common challenge in land management is the lack of trust due to opaque processes. Practitioners

should focus on enhancing transparency and accountability in land transactions and policy implementations by improving information dissemination and engagement strategies. This approach could include the use of digital tools for tracking progress, collecting stakeholder feedback, and ensuring open and clear communication in land management processes.

Strengthening Communication Networks. Communication gaps between stakeholders often impede effective land management. Bridging communication gaps between stakeholders is pivotal in enhancing land management. Practitioners should bolster these networks by leveraging intermediaries who can facilitate information flow and enhance stakeholder engagement. Improved dissemination strategies and active involvement of mediators can significantly elevate participation and collaboration in land management processes, thereby strengthening the governance model of land marketization reforms.

Incorporating Social Capital in Policy Making. Successful land policy reform can benefit from harnessing social capital within hierarchical community structures. Policies should be designed to tap into diverse social networks and cultural norms, fostering trust and collaboration across different levels of the social hierarchy. Engaging community leaders and representatives from various strata in policy communication and feedback processes can effectively mobilize social capital, fostering collaboration and trust-building, and thus ensuring more inclusive and robust policy outcomes.

Incentivizing Collaborative Land Management Practices. The observed decline in collective action capacity in rural settings, manifesting in reduced farmer cooperation,

directly impacts village vitality and public affairs management. Policy interventions should focus on providing tangible incentives for sustainable and cooperative land management activities. Such incentives, potentially in forms of subsidies or tax benefits, or recognition programs, aim at encouraging farmers and local communities to actively engage in and adopt collaborative approaches to land management, thereby contributing to the revival and sustainable development of rural areas.

Appendices

A. Household Questionnaire

The information collected will only be used for research purposes. It will be treated as confidential and will not be used by tax authorities or others to assess demands or obligations. Thanks for your cooperation.

0. Identification

	Enumerator	Date interview	Data checked by
Interview in 2022:			

1. Location of the household

Name of Township: _____

Name of Village: _____

Name of Hamlet: _____

Hamlet No: _____

Name of Villager Group : _____

Group No: _____

Name of household head: _____

Household No: _____

Contact details of household head: _____

2. Household composition

2.1 Household members and their activities

No	Relation	Sex:	Age:	Years of	Main	Secondar	non-agr
:	to head:			Educatio	occupatio	y	activities once:

	1=husband/ wife	1= male	(years)	n:	n in 2005:	occupatio	0= no work ,
	2=child				0=no	n in 2005:	1= brickie,
	3=grand child	2= fema			1=farmin g	0=no	2= carpenter,
	4=brother/ sister	le			2=agr. wage	1=farmin g	3= bamboo carpenter,
	5=son in law				labor in local	2=agr. wage	4= ironsmith,
	6=father/ mother				3=non-agr. wage	labor in local	5= handicraft
	7=other__				labor in local	3=non-agr. wage	6= manufacturing,
					4=self employm ent	labor in local	7= motorman,
					5= wage labor outgoing (less than a half year)	agr. wage	8= shop keeping,
					6= wage	labor in local	9= Agricultural Products
						4=self employm ent	10= repairer,
						5=wage labor outgoing (less than a half year)	11= teacher,
							12= doctor,
							13= servings,
							14= village cadre
							15= other(specify)_____

					labor outgoing (half year and more) 7=student (school) 8=other	6=other	
1	Head						
2							
3							
4							
5							
6							
7							
8							

Note: The household includes all people that eat and sleep under the same roof and unmarried family members

that contribute to the household income. Please circle the number of the person interviewed.

2.2 "How often do you communicate with your family members? (0 = never; 1 = one month and over; 2 = half a month; 3 = weekly; 4 = 2-3 days; 5 = daily.)"

No.	C1.1	C1.2	C1.3	C1.4	C1.5	C1.6	C1.7	C1.8
Respondent								

2.3 "How often do you communicate with others? (e.g., neighbors, village representatives, members of organizations, members of township governments, members of county government departments, landowners) (0 = never; 1 = one month and over; 2 = half a month; 3 = weekly; 4 = 2-3 days; 5 = daily.)"

No.	C2.1 Neighbor	C2.2 Village representative	C2.3 Organization	C2.4 Township government	C2.5 County government department	C2.6 Landowner
Respondent						

2.4 "How often do you communicate with the members from other villages? (0 = never; 1 = one month and over; 2 = half a month; 3 = weekly; 4 = 2-3 days; 5 = daily.)"

3. Social capital: Do you agree with the following statements? (Please use a scale of 1 to 5)

Question	Please ask questions in the context of 'the marketization of rural collectively-owned commercial construction land (LM)'	1 Strongly disagree	2 Disagree	3 Not sure	4 Agree	5 Fully agree
3.1	Trustworthiness of policy implementers in LM					
a.	The Village Committee informs you in a public way.	<input type="checkbox"/>				
b.	The Village Committee will provide	<input type="checkbox"/>				

	correct information.					
c.	The Village Hall respects the views of villagers when they are not accepted by them.	<input type="checkbox"/>				
d.	The Village Committee will not mislead villagers in their decisions.	<input type="checkbox"/>				
e.	The Village Committee has the ability to make the right decision.	<input type="checkbox"/>				
f.	The Village Committee is capable of completing LM.	<input type="checkbox"/>				
g.	The Village Committee has similar experience or success cases in the past.	<input type="checkbox"/>				
h.	Village Committee members have excellent business skills.	<input type="checkbox"/>				
3.2	Willingness to share information in LM					
i.	The Village Committee informs you in a public manner.	<input type="checkbox"/>				
j.	Members are able to share LM information selflessly.	<input type="checkbox"/>				

3.3	Institutions and norms in LM					
a.	The Village Committee did a good job in confirmation and registration of land property right.	<input type="checkbox"/>				
b.	The Village Committee did a good job in the public trading session.	<input type="checkbox"/>				
c.	The Village Committee did a good job in regulating land development and use.	<input type="checkbox"/>				
d.	The Village Committee did a good job in income distribution.	<input type="checkbox"/>				
3.4	Strategic objectives in LM					
e.	Villagers identify with the LM objectives of the village committee.	<input type="checkbox"/>				
f.	Villagers identify with the governance of the village committee.	<input type="checkbox"/>				

4. Trust of villagers in others in LM

4.1 In general, most people I can trust

I should be very careful

I don't know

4.2 To what extent do you (dis)agree? (Please use a scale of 1 to 5)

Statements	1 Strongly disagree	2 Disagree	3 Not sure	4 Agree	5 Fully agree
1 Parents are always reliable	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
2 Relatives are always reliable	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
3 Village fellows are always reliable	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
4 Village Committee are always reliable	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
5 Township government officials are always reliable	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
6 County government officials are always reliable	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
7 The Religious are always reliable	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>

4.3 Do you think that most people would try to take advantage of you if given the opportunity?

or that they would treat you fairly?

Most people would try to take advantage of me.

Most people would treat me fairly.

I do not know.

5. Villagers' attitudes of trust: Do you agree with the following statements? (Please use a scale of 1 to 5)

Statements	1 Strongly disagree	2 Disagree	3 Not sure	4 Agree	5 Fully agree
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1 The Village Committee communicate with you regularly	<input type="checkbox"/>				
2 The Village Committee explains the situation in detail if you are unsure about LM	<input type="checkbox"/>				
3 The Village Committee invites Village Representatives to give their views at LM discussion meetings	<input type="checkbox"/>				
4 The village committee will sign a contract with you	<input type="checkbox"/>				
5 The contract specifies the rights and obligations and the distribution of benefits	<input type="checkbox"/>				
6 Efficient implementations by the village committees after the contract is signed	<input type="checkbox"/>				
7 The commitments previously agreed between the Village Committee and you have not been subsequently adjusted	<input type="checkbox"/>				

6. Collective action

6.1 LM's cooperation: Do you agree with the following statements? (Please use a scale of 1 to

5)

Statements	1	2	3	4	5
	Strongly disagree	Disagree	Not sure	Agree	Fully agree
1 The village Committee did not	<input type="checkbox"/>				

need to spend a lot of time on mediation work					
2 Overall, the LM seems to have gone very well	<input type="checkbox"/>				
3 You think the LM in your village was very successful	<input type="checkbox"/>				

6.2 Attitudes and preferences: Do you agree with the following statements? (Please use a scale of 1 to 5)

Statements	1	2	3	4	5
	Strongly disagree	Disagree	Not sure	Agree	Fully agree
1. I never plant a new type of crop as the first one in the village, because it is too risky.	<input type="checkbox"/>				
2. I find an investment may make a big profit, I will borrow money to invest it even it may lose money.	<input type="checkbox"/>				
3. My region is a poor area, it is difficult to become rich if I don't take risk.	<input type="checkbox"/>				
4. I like to buy all kinds of lotteries if I have enough money, because I can earn a lot of money if I am lucky.	<input type="checkbox"/>				
5. I feel my land property right is uncertain because land reallocation, it has effect on the investment in	<input type="checkbox"/>				

my land.					
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7. Land property right

7.1 Is there ‘the marketization of rural collectively-owned commercial construction land (LM)’ in your village? _____ 1=Yes, 2=No, 9=Don't know

If yes, in which year? _____. Have you attended any discussion meetings related to

LM? _____ 1=Yes, 2=No, if yes, frequency : _____ times per year

7.2 Does your household have a land voucher (certificate of ownership of rural collectively-owned commercial construction land)? _____ 0=No, 1=Yes

Do you think that land titles are important for the protection of land ownership? _____

1=very important, 2=important, 3=Not sure, 4=not very important, 5=not important, 9=don't know

Would it increase your level of trust in the village council if the council issued land vouchers?

_____ 0=No 1=Yes

7.3 Who decides whether and how to organize the adjustment of land? _____

1 = administrative village leaders (village chiefs and secretaries), 2 = village council members, 3 = natural villages, 4 = village group leaders, 5 = villages, 6 = others (please specify: ____), 9 = don't know

The rules for land adjustment in your village group (village) are _____.

7.4 If you lease in or lease out land for non-agricultural production, what kind of agreement is in place? _____

1=verbal agreement; 2=written agreement

If there is only a verbal agreement, then why not a more formal written agreement? _____

1= We do not need a formal agreement because it is leased to a relative or friend; 2= The lease may be cancelled at any time to avoid binding the agreement; 3= Other (please specify: _____)

7.5 If possible, would you like to **lease in** some land for non-agricultural production?

Or would you like to lease in more land (already leased)? _____ 1= want to; 2= don't want to

(1) If you do not want to lease in land, what is the main reason (multiple choice): _____

1=I don't need more land, 2=no suitable land available, 3=not profitable, 4=the government does not allow leasing in land, 5= leased-in land may be repossessed by the leasing party, 6= leased-in land may be repossessed by the village, 7= other (please specify: _____)

(2) If you want to lease in land, your preferred method of rent payment is: _____

1= Percent share of proceeds 2= Fixed rent 3=Other _____

7.6 If possible, would you like to **lease out** some land for non-agricultural production?

Or would you like to lease out more land (already leased)? _____ 1= want to; 2= don't want to

(1) If you do not want to lease out land, what is the main reason (multiple choice): _____

1= not enough land for own use, 2= no one wants to rent it, 3= the government does not allow leasing in land, 4= other (please specify: _____)

(2) If you want to lease out land, your preferred method of rent payment is: _____

1= Percent share of proceeds 2= Fixed rent 3=Other _____

8. Performance

8.1 Number of savings held by the household in 2021: _____ RMB, or within the range of _____.

1= None, 2= <5,000 3=5,000-10,000, 4=10,000-20,000
5=20,000-50,000, 6= >50,000

8.2 Does the village participate in LM? _____ 1= Yes; 2= No; Do you personally participate in LM? _____

1= Yes; 2= No; If no, why (multiple choice): _____

1= a large number of property owners and land ownership has not been clarified; 2= the subsidies for LM have not met expectations; 3= a few people are emotionally opposed to it; 4= the government is afraid to take drastic measures against the few opponents; 5= the land parcels are finely fragmented and not organized in pieces; 6= no knowledge of LM; 7=other _____

8.3 (1) The subsidized income from LM _____ RMB, represents _____ % of the total household income for the year and _____ % of the household savings deposit

(2) To what extent do you think this subsidized income has improved the quality of life of your household: _____

1=No change, 2=Not much change, 3= Not sure, 4=Some change, 5=Much change

(3) Do you think this income from the allowance gives you security: _____

1 = Strongly disagree, 2 = Disagree, 3 = Not sure, 4 = Agree, 5 = Fully agree

8.4 Cooperation performance of subjective perceptions

Question	Please ask questions in the context of	1	2	3	4	5
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	‘the marketization of rural collectively-owned commercial construction land (LM)’	Strongly disagree	Disagree	Not sure	Agree	Fully agree
8.5.1	Sustaining satisfaction					
a.	You profit from LM	<input type="checkbox"/>				
b.	You support LM in your village	<input type="checkbox"/>				
8.5.2	Coordinating efforts					
a.	LM has achieved your desired objectives	<input type="checkbox"/>				
b.	The Village Committee has largely fulfilled your hopes for LM	<input type="checkbox"/>				
8.5.3	Dependence in the future					
a.	You will continue to support the relevant policies of the village if you encounter similar situations in the future	<input type="checkbox"/>				
b.	You will remain honest and trustworthy in other future cooperation	<input type="checkbox"/>				

9. Family member information

9.1 Did any of household members perform agricultural wage labor in the year 2021?

(During these periods, household members still lived in the household)? YES / NO

If yes:

No.	Place:	Activity:	Number	Days	Hours	Wage
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household Member	1= within hamlet 2= within village 3= within township 4= within county 5= outside county	1= reaping 2= Sowing 3= bamboo shoot digging 4= other_____	of months	per Month	per day	Amount (Yuan)	Per: 1=day 2=week 3=month 4=other (specify)_____

9.2 Did any of the household members perform non-agricultural wage labor in the year

2021? (During these periods, household members still lived in the household) YES / NO

If yes:

No.	PI	Activity:	Nu	D	H	Wage

house hold Member	place: 1=withi n haml et, 2=withi n villag e 3=withi n town ship 4=withi n count y 5=withi n provi nce	1=brickie, 2=carpenter, 3= bamboo carpenter, 4=ironsmith, 5=handicraft, 6=manufacturing, 7= motorman,8= shop keeping, 9=farmproducer, 10=repairer, 11=teacher,12=s ervings, 13=village cadre,14=other: ____	number Of months	days p er mont h	hours pe r d ay	Amount (Yuan)	Period: 1=day 2=week 3=mont h 4=other(specify) _____

9.3 Did any of household members live outside the hamlet in 2021? (During these periods,

household members did not live in the household)?

YES / NO

If yes:

No.	Migrated to:	Migrated since	Reason:	Number of	Times per year	Amount of	Activities:	Way of
HH member	1= within hamlet, 2= within village 3= within township 4= within county 5= within province 6=outside province	(month and year)	1= work 2=marriage 3=study 4=other:	of months stay in household room per year	Coming back	Remittances (Yuan per year)	1=farming 2=transport 3=services 4=manufactory 5= business 6=other: (specify) _____	Money Back: 0= none 1=by post or bank 2=bring by themselves 3=both 1 and 2

Notes: For household members use numbers given in household composition

9.4 Did any of family members send money back last year? YES / NO If yes:

No. Family Member	Migrated to: 1=within hamlet, 2=within village 3=within township 4=within county 5=within province 6=outside province	Migrated since (month and year)	Reason: 1=work 2=marriage 3=study 4=other: (specify) _____	Times per year Coming back	Amount of Remittances (Yuan per year)

Notes: No. Family Member: write down their relationship to the head of the family in the first column in letter, for example father and son.

9.6 Did household members participate in medical insurance in the last year (2021)?

pension insurance? _____, 1=No, 2=Yes.

If yes, how much do you have to pay for each: medical insurance: _____RMB/person·year

10. Organization

10.1 Is your family a technology demonstration household? _____ 1=yes, 2=no

10.2 Is your family a member of the Village Council? _____ or a member of other democratic decision-making bodies

_____ 1=yes, 2=no

10.3 With the establishment of the Village Council, do you feel that current decision-making on villagers' public affairs has improved? _____ 1=Yes, 2=No

If no change, the reasons are _____

1= Impartial recommendation and selection of council members, 2= Unclear decision-making principles, 3= Too much interference from village leaders, 4=Other (please specify _____)

11. FINAL REMARKS (By enumerator)

General Impression of the interview

Accurate Answers: (good/medium/poor)

Willingness to Reply: (good/medium/poor)

Time used: _____

B. List of Publications

Paper 1: Zhou, L., & de Vries, W. T. (2022). Collective Action for the Market-Based Reform of Land Element in China: The Role of Trust. *Land*, 11(6), 926.

Authors' contribution: Zhou, L. (80%), de Vries, W.T. (20%).

Paper 2: Zhou, L., de Vries, W. T., Panman, A., Gao, F., & Fang, C. (2023). Evaluating Collective Action for Effective Land Policy Reform in Developing Country Contexts: The Construction and Validation of Dimensions and Indicators. *Land*, 12(7), 1401.

Authors' contribution: Zhou, L. (60%), de Vries, W.T. (15%), Panman, A.(10%), Gao, F.(8%), Fang, C. (7%).

Paper 3: Zhou, L., Zhang, W., Fang, C., Sun, H., & Lin, J. (2020). Actors and network in the marketization of rural collectively-owned commercial construction land (RCOCCL) in China: A pilot case of Langfa, Beijing. *Land Use Policy*, 99, 104990.

Zhou, L. (60%), Zhang, W. (15%), Fang, C. (10%), Sun, H. (8%), Lin, J. (7%).

Paper 4: Zhou, L., Zhou, Y., de Vries, W. T., Liu, Z., & Sun, H. (2024). Collective action dilemmas of sustainable natural resource management: A case study on land marketization in rural China. *Journal of Cleaner Production*, 439, 140872.

Zhou, L. (60%), Zhou, Y. (15%), de Vries, W. T. (10%), Liu, Z. (8%), Sun, H. (7%).

Paper 5: Zhou, L., de Vries, W.T., Gao, F., Fang, C. The Effectiveness of Voluntary Collective Action in Rural Land Sustainable Development. *Habitat International (Accepted)*

Zhou, L. (60%), de Vries, W. T. (15%), Guo, G. (9%), Gao, F. (8%), Fang, C. (8%).