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Land Use Dilemma and Governance Path under the Background of Rural Hollowing-out

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Abstract

With China's urbanization process accelerating, a significant number of young and middle-aged rural laborers are migrating to urban areas, exacerbating the rural hollowing phenomenon. This has directly led to issues such as inefficient land use, idle resources, and wastage, severely hindering the implementation of rural revitalization strategies and agricultural modernization. Based on concrete data from rural population dynamics, land use patterns, aging trends, and population outflow over the past decade, this study analyzes the core challenges and underlying causes of rural land utilization under the hollowing context. Drawing on practical experiences from typical regions, it proposes targeted governance approaches to optimize rural land resource allocation, address rural hollowing challenges, and enhance rural governance effectiveness, providing theoretical references and practical support for policy implementation.

Keywords

Rural Hollowing; Land Use; Population Outflow; Aging; Governance Approaches

1. Introduction

Rural hollowing out is an inevitable consequence of uneven urban-rural development during urbanization, primarily manifested through the continuous outflow of rural populations—especially young and middle-aged adults—which leads to structural issues such as demographic imbalance in villages, idle land resources, and weakened public services [1]. Land serves as the most critical production factor in rural areas, with its utilization efficiency directly impacting agricultural quality improvement, food security assurance, and the overall rural revitalization strategy. According to data from the National Bureau of Statistics, China's rural permanent population decreased from 618 million to 471 million between 2014 and 2024, representing a total reduction of 147 million people. The rural population share in the total population dropped from 45.23% to 33.65% [2]. This massive population exodus has triggered profound changes in rural land use patterns, with issues like abandoned farmland and idle residential plots becoming increasingly prominent. These phenomena not only result in land resource wastage

but also exacerbate the lack of endogenous development momentum in rural areas. China is currently at a critical phase of advancing its rural revitalization strategy. Addressing land use challenges amid rural depopulation and achieving efficient, sustainable land resource utilization have become pressing issues in public management. This paper synthesizes authoritative data and case studies from the past decade to comprehensively analyze land use challenges, explore scientific governance approaches, and provide insights for promoting integrated urban-rural development and enhancing rural governance capabilities.

2. Current Characteristics of Rural Hollowing-out and Core Data Support (2014-2024)

Over the past decade, rural hollowing in China has exhibited characteristics of normalized population outflow, intensified structural imbalance, and expanded land idleness. Relevant data clearly demonstrate the correlation between hollowing and land use, providing robust data support for subsequent analyses.

2.1. Rural Population Outflow Trend: Continuously Expanding Scale and Increasing Concentration of Outflow

The outflow of rural population is the primary cause of urban hollowing, with migration scale showing a steady expansion trend over the past decade. According to the National Bureau of Statistics '"2024 Migrant Workers Monitoring Survey Report," China's migrant worker population grew from 274 million in 2014 to 299 million by 2024, representing an increase of 25 million over ten years with an average annual growth rate of 0.9% [3]. During this period, the proportion of migrant workers engaged in non-local employment rose from 60.4% in 2014 to 62.1% in 2024. Cross-provincial migrant workers maintained a stable share of approximately 45% within this group, predominantly migrating to eastern coastal cities and provincial capitals in central and western regions.

Geographically, rural population outflow is particularly pronounced in central and western China. Taking Laowu Village in Chongqing as an example, over 85% of its young and middle-aged population has migrated. Among the 277 households and 777 residents, only 87 households (116 people) remain permanent residents, accounting for less than 15% of the total population [4]. Similarly, Henan Province saw its rural youth migration rate rise from 38.2% in 2014 to 47.6% in 2024, with some remote villages experiencing outflow rates exceeding 60% [5]. This continuous population exodus has led to a significant decline in rural labor force, directly impacting land cultivation efficiency and utilization capacity.

2.2. Rural Population Structure: Accelerated Aging and Declining Labor Force Quality

Population outflow has further exacerbated rural population aging, resulting in a

demographic structure dominated by left-behind elderly and children. Data released by the National Bureau of Statistics shows that the proportion of individuals aged 60 and above in China's rural population reached 18.3% in 2014, rising to 28.7% by 2024—a 10.4 percentage point increase over a decade, far exceeding the urban aging rate during the same period (which increased from 12.3% to 21.8%) [2]. Notably, the share of rural residents aged 65 and above climbed from 11.5% in 2014 to 20.1% by 2024, marking the onset of a profound aging phase.

The deepening aging population trend combined with the outflow of young and middle-aged adults has significantly reduced the quality of rural labor. In 2024,52.3% of rural workers were aged 50 or above, 78.6% had junior high school education or lower, and fewer than 20% possessed modern agricultural production skills [3]. This structural imbalance has led to extensive farming practices, hindering the implementation of large-scale and intensive land management, which further diminishes land utilization efficiency.

2.3. Current Status of Land Use: Prominent Issues of Idle Waste and Low Allocation Efficiency

The hollowing-out of rural populations has directly led to land degradation, with abandoned farmland and idle residential plots becoming increasingly prevalent. According to data from the Ministry of Agriculture and Rural Affairs, China's rural abandoned farmland area reached approximately 4.67 million hectares in 2014, rising to 6.23 million hectares by 2024—a 1.56-million-hectare increase over the decade, with the abandonment rate climbing from 2.8% to 3.7% [6]. The phenomenon is most pronounced in mountainous regions of central and western China. In Laowu Village, Chongqing, abandoned farmland spans over 6.7 hectares, accounting for 4.1% of the village's total arable land [4]. Henan Province reports 890,000 hectares of abandoned farmland, primarily concentrated in remote mountainous and hilly areas [5].

The issue of idle rural homesteads remains severe. Between 2014 and 2024, China's unused rural homestead area expanded from 1.08 million hectares to 1.56 million hectares, with the vacancy rate rising from 12.1% to 17.3% [6]. In Laowu Village, Chongqing, approximately two-thirds of homesteads remain vacant, while 60% of residences along the main village roads are abandoned [4]. In Shandong Province, the idle rate reaches 16.8% for rural homesteads, with some villages exceeding 30% [7]. These idle lands not only waste valuable land resources but also hinder rural development and industrial growth.

3. The Core Challenges of Land Use in the Context of Rural Hollowing-out

Based on the aforementioned data and practical examples, under the phenomenon of rural hollowing-out, land use faces four major challenges: idleness and waste,

imbalanced allocation, low efficiency, and weak supervision—spanning aspects such as land property rights, management practices, and public services. These issues highlight a significant gap between current practices and the diverse governance objectives of society.

3.1. Dilemma 1: Severe fallow of arable land poses potential threats to food security

A large number of young laborers have migrated out, leaving primarily the elderly, women, and children in rural areas. The shortage of sufficient labor for agricultural production has led to a continuous expansion of abandoned farmland. According to research data from the Ministry of Agriculture and Rural Affairs, labor shortages account for 68.3% of the abandoned farmland [6]. Moreover, traditional agriculture yields low returns; in 2024, the per capita agricultural income of rural residents in China was only 6,789 yuan, representing 21.3% of their per capita disposable income [2]. Some farmers prefer to leave their land idle rather than invest labor and resources in cultivation.

Moreover, rural land fragmentation remains a significant issue in China. By 2024, the average arable land per household in rural areas had shrunk to merely 0.67 hectares, with most plots remaining scattered [6]. This fragmented distribution hinders large-scale mechanized farming operations, further reducing agricultural productivity and exacerbating the problem of fallow land. Leftover farmland not only leads to idle land resources but also poses threats to national food security—a situation that contradicts China's strategic commitment to maintaining the 1.8 billion mu (approximately 120 million hectares) arable land red line [8].

3.2. Dilemma II: Prominent idle residential land plots and imbalanced land resource allocation

Following rural population migration, numerous farming households have relocated to urban areas, leaving their original homesteads idle and abandoned. This has resulted in phenomena such as multiple residences per household and vacant houses. According to data released by the Ministry of Natural Resources, the proportion of rural households with multiple residences in China reaches 15.2%, while vacant houses account for 47.8% of idle homesteads [9]. These unused homesteads are neither effectively utilized nor easily transferable, leading to inefficient land resource allocation.

Meanwhile, the rural homestead transfer mechanism remains underdeveloped. In 2024, China's rural homestead transfer rate stood at merely 8.7% [6], significantly lower than the farmland transfer rate of 38.2%. In some regions, homestead reclamation policies have been inadequately implemented. For instance, Laowu Village in Chongqing demolished over 40 residential houses under the homestead reclamation policy, freeing up 2.7 hectares of land. However, the inefficient

large-scale utilization of these lands has exacerbated the conflict between idle homesteads and abandoned farmland [4].

3.3. Dilemma III: Low land operation efficiency and weak industrial support capacity

The hollowing-out phenomenon in rural areas has led to a lack of land management entities, with the current operators predominantly being elderly individuals who lack modern management concepts and technical expertise. This results in extensive land management practices and low output efficiency. In 2024, the output value per mu of rural farmland in China was only 1,862 yuan, significantly lower than the average level in developed countries (approximately 3,200 yuan per mu) [6]. Additionally, the marketization level of land transfer remains low, with low transfer prices and a lack of dynamic adjustment mechanisms. For instance, in the early land transfer contracts of Laowu Village in Chongqing, some plots had annual rents as low as 40 yuan per hectare, severely mismatched with market value and causing harm to farmers' land income [4].

Furthermore, the development of rural industries lags behind, with insufficient integration between land use and industrial activities. Most hollow villages have long relied on traditional crop farming, resulting in weak agricultural product processing capabilities and low added value, making it difficult to establish distinctive industries. In 2024, China's refined processing rate for rural agricultural products was only around 10%, significantly lower than the over 60% level in developed countries [10], leaving the economic value of land underutilized.

3.4. Dilemma IV: Incomplete regulatory system and chaotic land use order

Amid rural hollowing, grassroots governance remains relatively weak, and the land use supervision system is inadequate. Some regions prioritize approval processes over effective oversight, resulting in insufficient monitoring of issues such as abandoned farmland, idle homesteads, and unauthorized land occupation. According to data released by the Ministry of Natural Resources, 127,000 cases of illegal land occupation were identified nationwide in 2024, with 38.6% of these cases involving idle land caused by rural hollowing [9]. Meanwhile, land ownership registration remains deficient, with unclear property rights for many rural lands hindering land transfers and reclamation efforts. Additionally, villagers show low enthusiasm for participating in land management. The exodus of young adults from hollowed villages has led to a lack of grassroots democratic participation, depriving land use decisions of effective villager input—a situation that further exacerbates disorder in land utilization practices [4].

4. Analysis of the Causes of Land Use Challenges in the Context of Rural Hollowing Out

Against the backdrop of rural hollowing, the challenges in land utilization stem from multiple factors including uneven urban-rural development, imperfect property rights systems, insufficient industrial support, and lagging public services. At its core, this manifests as imbalances in resource allocation, governance efficiency, and service provision within public management systems.

4.1. Root cause: Imbalanced urban-rural development and population outflow creating a "push-pull" effect

The urban-rural dual system has created significant disparities between cities and rural areas in employment, education, healthcare, and infrastructure, generating both driving and pulling effects on population migration [11]. From the driving perspective, rural agriculture offers relatively low income and limited job opportunities. In 2024, the per capita disposable income of rural residents reached 31,930 yuan, merely 61.6% of urban residents 'per capita disposable income (51,821 yuan) [2], falling short of farmers' aspirations for a better life. Conversely, cities provide abundant job opportunities, higher income levels, and more comprehensive public services such as education and healthcare, attracting large numbers of young and middle-aged rural laborers to migrate outward. The continuous population outflow has led to a shortage of land operators, directly resulting in land idleness and inefficient utilization.

4.2. Institutional reasons: The land property rights system is imperfect, and the transfer mechanism is inadequate.

China's rural land reform has implemented the three-rights separation system, yet practical implementation still faces challenges such as ambiguous property rights delineation and imperfect circulation mechanisms. On one hand, the transfer of homestead use rights encounters significant restrictions, with most regions prohibiting transfers to non-members of local collective economic organizations, which hinders the effective utilization of idle homesteads. On the other hand, the land circulation market remains underdeveloped, lacking unified trading platforms and price evaluation mechanisms, resulting in information asymmetry that further reduces circulation efficiency and leads to irrational pricing [12]. Additionally, deficiencies in land rights confirmation and registration procedures—particularly unclear ownership status—continue to impede land circulation and efficient utilization.

4.3. Economic reasons: Insufficient industrial support and low land management efficiency

Rural industries exhibit a relatively homogeneous structure, lacking distinctive local specialties and leadership from flagship enterprises, resulting in a disconnect between land utilization and industrial development. Many hollow villages have long relied on traditional crop farming, where agricultural products carry low added

value and land management efficiency remains stagnant. Concurrently, rural areas suffer from inadequate technological investment—China's agricultural R&D expenditure accounted for merely 2.8% of total agricultural output in 2024, far below the over 5% threshold observed in developed countries [10]. This technological gap hinders the adoption of modern farming techniques and reduces land productivity. Additionally, underdeveloped infrastructure such as logistics networks and storage facilities, coupled with inefficient agricultural product distribution channels, further diminishes farmers' motivation to cultivate land.

4.4. Governance Reasons: Inadequate effectiveness of grassroots governance and lagging provision of public services

The hollowing-out of rural areas has resulted in a shortage of grassroots governance capacity. Village Party committees and village committees are characterized by an aging workforce with low educational attainment and insufficient reserve personnel, hindering effective land management and governance efforts [13]. Meanwhile, rural public services remain underdeveloped, with inadequate infrastructure for essential services such as education, healthcare, and elderly care. The unmet living and developmental needs of left-behind elderly and children further exacerbate population outflow. Additionally, insufficient land supervision resources and outdated regulatory methods make it difficult to effectively manage issues like land idleness and illegal land occupation, leading to chaotic land use patterns.

5. Governance Approaches for Land Use under the Background of Rural Hollowing-out

To address land use challenges in rural hollowing-out scenarios, it is essential to adhere to the principles of government guidance, market dominance, villager participation, and multi-stakeholder collaboration. Efforts should be made from multiple dimensions including property rights systems, industrial development, grassroots governance, and public services to optimize land resource allocation, enhance land use efficiency, and promote rural revitalization.

5.1. Improve the land property rights system and refine the land transfer mechanism

First, advance the reform of rural land tripartite rights separation by clarifying boundaries between land ownership, contracting rights, and management rights, granting farmers more comprehensive land management rights, and permitting voluntary compensated transfers of contracting rights in accordance with regulations [12]. Second, improve the homestead transfer system by relaxing restrictions on homestead transfers, piloting compensated exit mechanisms and cross-village transfers, and incentivizing the reclamation of idle homesteads for farmland or rural development. For instance, Laowu Village in Chongqing integrated

homestead reclamation with land transfers, revitalizing 649 hectares of idle land for intensive farming and mining operations [4]. Third, establish a unified land transfer platform, refine the land valuation system, ensure transparent information disclosure during transfers, and safeguard farmers 'land benefits. China's rural land transfer rate reached 38.2% in 2024, though further expansion of transfer scale remains necessary [6].

5.2. Strengthening industrial support and enhancing land management efficiency

First, optimize the rural industrial structure by leveraging local resource advantages to develop specialized farming and breeding operations, advanced agricultural product processing, and rural tourism industries. This promotes integrated development of agriculture, industry, and services while enhancing land value-added [13]. For instance, Huan County capitalizes on its semi-arid loess plateau resources to cultivate small grain industries. Through the "three-chain integration" model, it achieves deep integration of land utilization and industrial development, thereby increasing farmers 'income [14]. Second, cultivate new agricultural business entities by strengthening support for family farms, farmers' cooperatives, and agricultural leading enterprises. Promote large-scale, mechanized, and standardized operational models to improve land productivity. As of 2024, China has 3.9 million new agricultural business entities, requiring further amplification of their driving effects [6]. Third, increase investment in rural technology by adopting modern agricultural techniques, upgrading infrastructure such as logistics and storage facilities, expanding agricultural product sales channels, and enhancing farmers' initiative in land management.

5.3. Strengthening grassroots governance and standardizing land use order

First, enhance the guiding role of grassroots Party organizations by selecting and appointing competent village Party branch and village committee officials, cultivating talent for grassroots governance, and improving governance efficiency [15]. Implement the "Party building + grid-based governance" model, incorporating land management into the grid management framework, clarifying regulatory responsibilities, and strengthening oversight of issues such as abandoned farmland, idle homesteads, and illegal land occupation. Second, strengthen the villagers 'self-governance system by establishing village-level land affairs consultation and deliberation committees to encourage villagers' participation in land use decision-making, management, and supervision, thereby increasing their involvement [4]. Third, enhance land supervision capabilities by leveraging modern technologies like remote sensing monitoring and big data to establish a smart supervision system that enables dynamic land use monitoring and imposes strict

penalties for illegal land occupation [9].

5.4. Optimize public service supply and guide rational population return

First, develop collective economy models and improve public service facilities in rural areas such as education, healthcare, and elderly care to narrow the urban-rural service gap and attract young laborers to return home [16]. For instance, establishing rural elderly care centers, village clinics, and rural schools can meet the daily needs and educational requirements of left-behind seniors and children, enhancing rural appeal. Second, implement talent retention incentives by providing financial support, tax breaks, and vocational training for returnees starting businesses, encouraging their involvement in land management and rural development [13]. In 2024, China saw 11.2 million people returning to rural areas for entrepreneurship, necessitating enhanced incentive measures to expand the scale of returnees [3]. Third, promote urban-rural integration through improved transportation and communication infrastructure, facilitating resource allocation from cities to rural areas and achieving equitable exchange of resources to fundamentally address rural hollowing-out issues.

6. Conclusion and Outlook

Over the past decade, the hollowing-out of rural areas in China has become increasingly pronounced, with continuous population outflow and deepening aging leading to land use challenges such as abandoned farmland and idle residential land plots. These issues severely hinder the implementation of the rural revitalization strategy and the advancement of agricultural and rural modernization. The emergence of these difficulties results from multiple factors including uneven urban-rural development, an imperfect property rights system, insufficient industrial support, and inadequate grassroots governance effectiveness, fundamentally representing imbalances in resource allocation and service provision within public management.

To address land use challenges in rural hollowing-out scenarios, comprehensive measures must be implemented across multiple dimensions: strengthening land property rights systems, enhancing industrial support mechanisms, improving grassroots governance frameworks, and optimizing public service provision. Key strategies include refining land transfer regulations, cultivating innovative agricultural business entities, boosting local governance efficiency, and guiding rational population migration patterns to achieve efficient and sustainable land resource utilization. As the rural revitalization strategy advances, it is essential to strengthen top-level planning, promote urban-rural integration, dismantle the urban-rural dichotomy, and transform rural areas into livable communities conducive to entrepreneurship. This approach will simultaneously enhance land use

efficiency and rural governance effectiveness. Concurrently, regional differentiation studies should be intensified to develop tailored governance approaches based on specific rural hollowing-out patterns and land use realities across different regions, providing targeted practical references for China's rural land utilization and revitalization initiatives.

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