Research on Institutional Mechanisms and Pathways for Rural Revitalization through Two-Way Flow of Urban-Rural Factors

Yuchen Guo*

Guizhou University of Finance and Economics, Guiyang 550025, Guizhou, China

Abstract: Against the backdrop of rural revitalization, this paper explores the institutional mechanisms and pathways for bidirectional flow of urban-rural factors. Drawing on theories of factor mobility and urban-rural integration, it traces the evolution from unidirectional to bidirectional flows. Findings reveal that while innovation factors grow increasingly vital and regional mobility exhibits divergence under emerging technology drivers, challenges persist including institutional barriers, imperfect market mechanisms, and imbalanced factor endowments. Institutional development, market forces, government intervention, and social governance serve as primary drivers. Practical implementation can advance through three dimensions — subjects, structure, and dynamics — by improving talent and capital mechanisms, optimizing county-level platforms, and enhancing infrastructure and services. These pathways provide support for urban-rural integration and contribute to rural revitalization.

***Keywords*:** urban-rural factors, two-way flow, urban-rural integration, rural revitalization

1. Introduction

The rural revitalization strategy serves as the overarching approach to China's new-era agriculture, rural areas, and farmers (ARF) work. The bidirectional flow of urban-rural factors constitutes the core driving force for achieving rural revitalization and represents a key pathway to dismantling the urban-rural dual structure and promoting integrated urban-rural development[1]. The 20th CPC National Congress and a series of central documents emphasize the necessity of establishing sound institutional mechanisms to facilitate the equal exchange and bidirectional flow of urban-rural factors. International experience demonstrates that institutional reforms in land, social security, capital, and technology can effectively promote factor mobility and inject vitality into rural areas[2]. Currently, China still faces critical challenges such as fragmented urban-rural labor markets, low land utilization efficiency, declining rural investment growth, and weak financial support. These issues constrain rural economic vitality and the complementary advantages between urban and rural areas, potentially exacerbating the urban-rural gap. Therefore, facilitating the flow of factors between urban and rural areas is crucial for unlocking rural potential and advancing shared prosperity.

Under the dual urban-rural structure, the key to advancing rural revitalization lies in dismantling institutional barriers to two-way factor flows between urban and rural areas. This involves leveraging urban areas' leading role in resource allocation and industrial complementarity while harnessing rural distinctive resources and culture to enhance the quality and efficiency of urban-rural integration[3]. Existing research has extensively explored the connotations, obstacles, and mechanisms of factor mobility, yet theoretical fragmentation and unclear practical pathways persist.This paper systematically reviews relevant literature to provide theoretical foundations and practical references for understanding the interactive logic of two-way urban-rural factor flows within the context of rural revitalization.

2. Theoretical Foundations and Evolution of Urban-Rural Factor Mobility

In the process of integrated urban-rural development, the flow of urban and rural factors serves as the core driving force for urban-rural integration. Its essence lies in establishing an equal development platform to ensure the free and efficient two-way flow of urban and rural factors, with the fundamental goal of gradually narrowing the gaps between urban and rural areas in terms of economic development levels, public service provision, and residents' quality of life. Deepening the exploration of its theoretical foundations and conceptual evolution can provide solid support for subsequent research.

2.1 Theoretical Foundations

2.1.1 Factor Mobility Theory

The free flow of factors is a crucial prerequisite for balanced regional economic development. Traditional theories posit that factors spontaneously flow in response to differences in marginal returns, thereby achieving optimal resource allocation.

However, China's urban-rural factor flows have long exhibited a unidirectional "rural-to-urban" pattern[4], leading to a "blood loss" dilemma in rural areas characterized by the outflow of labor, land, and capital, which exacerbates urban-rural imbalances.The "factor misallocation" theory attributes this phenomenon to institutional distortions. The dual household registration system restricts the free movement of rural labor and their access to rights and benefits[4], while land systems hinder the effective transfer of rural land and capital inflows. Therefore, promoting rational factor flows between urban and rural areas requires market-oriented reforms and appropriate government intervention to eliminate institutional barriers and facilitate factor rebalancing across urban and rural regions.

2.1.2 Urban-Rural Integration Theory

The urban-rural integration theory emphasizes functional complementarity and bidirectional interaction of factors between urban and rural areas, breaking away from the traditional binary opposition mindset. Scholars argue that urban-rural integration requires a systemic restructuring of "factors-structure-function" to establish a new urban-rural relationship characterized by "industry supplementing agriculture and cities driving rural areas."

At the factor level, it is necessary to promote the free flow and optimal allocation of urban and rural capital, labor, technology, information, and other factors, fully leveraging the advantages of urban capital, technology, and talent alongside rural land and labor resources. At the structural level, Yang Jie et al. (2025) argue for coordinated upgrading of urban and rural industrial structures: rural areas should develop distinctive agriculture, agricultural processing, rural tourism, and other industries to achieve integrated development across primary, secondary, and tertiary sectors;cities should advance toward high-end manufacturing and modern services, achieving organic integration and coordinated development of urban and rural industries[5]. Functionally, complementary economic, social, and ecological roles must be strengthened: cities should lead technological innovation, while rural areas should shoulder responsibilities for ecological conservation, agricultural supply, and cultural heritage preservation, thereby enhancing overall development quality.

2.2 Evolution of Conceptual Framework

The connotation of urban-rural factor flows has evolved with China's socioeconomic development stages, transitioning from "restricted mobility" to "unidirectional outflow" and then to "bidirectional interaction." This paper focuses on analyzing the latter two phases.

2.2.1 Unidirectional Flow Stage

In the early years of reform and opening-up, China implemented an "urban-biased" development policy to accelerate industrialization and urbanization. Attracted by higher wages and greater employment opportunities in cities, factors such as labor, land, and capital flowed massively from rural to urban areas. Rural laborers migrated to cities as migrant workers, forming a large-scale "migrant worker wave" that provided ample labor resources for urban construction.

Simultaneously, rapid urban expansion led to the expropriation of vast tracts of rural land for infrastructure and industrial development, disrupting agricultural production and infringing upon farmers' land rights. Furthermore, Lü Ping et al. (2018) found that rural financial institutions, driven by profit maximization, channeled substantial capital into urban areas, resulting in rural capital shortages and inadequate funding for agricultural and rural development[6]. This massive outflow of rural factors further exacerbated urban-rural development imbalances, widening the gap between urban and rural areas.

2.2.2 Two-Way Flow Phase

With the establishment of the "rural priority development" orientation since 2010, a series of policies have emphasized promoting the return of factors and urban-rural coordination. Both the 2018 and 2021 Central Document No. 1 explicitly called for establishing sound mechanisms for integrated urban-rural development to facilitate the equal exchange and two-way flow of factors.Zhang Chewei et al. (2019) argue that institutional barriers must be dismantled to activate endogenous rural dynamism through mechanisms like "talent returning to the countryside" and "capital flowing into rural areas "[7]. This necessitates improving rural talent policies to attract professionals back to their hometowns and innovating financial services to channel social capital into rural industries and infrastructure.

Against the backdrop of the rural revitalization strategy, in-depth research on the institutional mechanisms and pathways for two-way flow of urban-rural factors, grounded in theories of factor mobility and urban-rural integration, holds significant practical importance for promoting integrated urban-rural development and narrowing the urban-rural gap.

3. Current Characteristics and Challenges of Two-Way Factor Mobility Between Urban and Rural Areas

While positive progress has been made in achieving two-way flow of urban-rural factors, numerous challenges persist. To facilitate smooth two-way factor mobility and support rural revitalization, efforts must focus on three dimensions: institutional

innovation, market mechanism refinement, and factor endowment optimization. By integrating current characteristics, we should establish scientifically sound institutional frameworks and explore practical implementation pathways.

3.1 Current Characteristics

Research on the two-way flow of urban and rural factors can draw upon regional economic theories. Considering the current development landscape, this flow can be analyzed from two dimensions: factor types and regional mobility:

3.1.1 Innovation in Factor Types

Building upon the sustained flow of traditional factors like labor, land, and capital, new factors such as technology, data, and ecology are playing increasingly prominent roles in urban-rural interactions. Regarding digital technology, Wenxin and Gao Weixin (2024) found in their study of integrated urban-rural development in counties within the Guangdong-Hong Kong-Macao Greater Bay Area that digital transformation facilitates the two-way flow of urban-rural factors[8].The "Internet+Agriculture" model provides powerful support for extending urban-rural industrial chains: at the production end, the application of digital equipment such as sensors and drones significantly enhances agricultural production efficiency and product quality; at the sales end, e-commerce platforms serve as crucial channels for agricultural products to enter urban markets. Li Daohe et al. (2024) found that digital rural development significantly boosts the value of regional public brands for tea in rural areas[9].

Regarding ecological factors, as urban residents increasingly pursue ecological environments and high-quality living, rural landscapes—with their green mountains, clear waters, and pastoral scenery—have become unique resources. The thriving development of rural eco-tourism and leisure agriculture attracts urban residents to experience agricultural activities and enjoy natural scenery, facilitating the value conversion of ecological factors from rural to urban areas and driving rural economic growth.

3.1.2 Spatial Regional Perspective

In developed eastern regions, prefecture-level cities serve as units for advancing factor mobility, while counties in central and western regions require strengthened infrastructure and industrial support. In economically advanced areas like the Yangtze River Delta, positive shifts in urban-rural factor flows have emerged, with phenomena such as "talent returning to the countryside" and "capital flowing to rural areas" becoming increasingly evident.Wei Man (2024) et al., using the Yangtze River Delta as a case study, found that during urban-rural industrial integration, the added value of distinctive industries can be enhanced while indirectly attracting external capital. This encourages educated workers and migrant laborers to return home to start businesses, driving rural economic transformation[10].Luo Xubin (2024), using poverty-alleviation regions as a case study, found that digital elements can comprehensively empower urban-rural production through five transmission mechanisms: industrial integration, factor integration, service integration, cultural integration, and ecological integration. This further optimizes the pathways for the digital economy to enhance the quality of urban-rural integration[11].

3.2 Existing Issues

Overall, academic research has primarily focused on micro-level factors such as types, flow directions, and modes of movement, while macro-level perspectives have examined broader issues like institutional frameworks and mechanisms ensuring rational factor mobility, as well as initial endowment characteristics between urban and rural areas. Existing challenges are summarized below across institutional, market mechanism, and factor endowment dimensions:

3.2.1 Institutional Barriers

Institutional divisions such as household registration, land tenure, and social security systems remain core obstacles to bidirectional factor flows between urban and rural areas. Regarding household registration, disparities in public services persist for urban and rural residents in areas like employment, education, and healthcare.Regarding land, irregularities in rural land transfers, unstable lease terms, and restrictions on urban residents acquiring rural homestead land suppress capital and talent migration to rural areas. In social security, significant disparities between urban and rural systems and inefficient transfer procedures create concerns about pension and healthcare for farmers moving to cities, hindering optimal labor allocation.

3.2.2 Incomplete Market Mechanisms

Urban-rural factor markets may exhibit "dual failure," where market self-regulation breaks down alongside insufficient or misguided government intervention.Zhu Dongliang (2020), in studying rural land transfers, noted that information asymmetry in the land transfer market and unreasonable price formation mechanisms make it difficult for farmers and enterprises to reach consensus on pricing[12]. Regarding capital flowing into rural areas, scholars have identified regulatory gaps in rural areas, coupled with an underdeveloped rural financial services system. Narrow financing channels and high costs result in insufficient capital support for rural industrial development, inhibiting the effective allocation of capital factors to rural areas[13].

3.2.3 Imbalanced Factor Endowments

Rural factor endowments exhibit a disadvantage characterized by "one scarcity and three difficulties.""One scarcity" refers to the shortage of mobile, high-quality factors, with an aging workforce and capital outflow severely constraining industrial revitalization. The "three difficulties" manifest as: land and labor facing institutional barriers to outflow, low transfer income, and challenges in urban integration; capital, technology, and talent struggling to inflow due to weak foundations and insufficient policies; and even when some factors do enter, inadequate supporting infrastructure hinders their retention. These factors collectively impede the two-way flow of urban-rural factors and rural industrial development.

4. Drivers and Practical Pathways for Two-Way Flow of Urban-Rural Factors

The formation of a two-way flow mechanism for urban-rural factors is not achieved overnight; it relies on key drivers such as institutions, markets, government, and society. As China's economy and society develop, the urban-rural relationship continues to evolve—from coordinating urban-rural development to integrating urban and rural development, and then to promoting integrated urban-rural development. Facilitating the two-way flow of urban-rural factors has become a crucial theoretical and practical issue. Therefore, identifying the driving factors and institutional mechanisms while innovating practical pathways is key to rural development in the context of rural revitalization.

4.1 Driving Factors

4.1.1 Institutional Development

Robust institutional development is the prerequisite for facilitating the two-way flow of urban-rural factors, and institutional operations must align with China's realities. Traditional systems, tested over long-term practice, have revealed numerous issues. At the macro level, the socially segregated management system between urban and rural areas, coupled with micro-level institutional barriers rooted in the dual structure—such as the household registration system, land system, and financial system—restrict the free flow of urban-rural factors. Additionally, rural technological development remains relatively weak, and the urban-rural digital divide is a significant concern.

4.1.2 Market Mechanisms

Leveraging the market's role in resource allocation is essential for facilitating two-way flow of factors between urban and rural areas. Currently, the market's decisive role in resource allocation remains underutilized due to the dual structure and government policy interventions.Wang Xiangyang (2020), in studying bidirectional factor flows between urban and rural areas, proposed that promoting productivity convergence between agricultural and non-agricultural sectors is essential. This would enable factors such as land, labor, capital, and technology to flow freely between urban and rural areas according to market supply and demand, achieving Pareto optimality in social resource allocation[14].

4.1.3 Government Intervention and Social Governance

Appropriate government intervention forms the foundation for facilitating two-way flows of factors between urban and rural areas. Local governments should actively build bridges for the two-way flow and equitable exchange of factors, refining mechanisms that synergize effective markets with capable governments. Simultaneously, social stability and robust grassroots governance serve as fundamental safeguards for these flows.

4.2 Practical Pathways

By reviewing existing research, the practical pathways and mechanisms for bidirectional flow of urban-rural factors can be systematically analyzed from three dimensions: development agents, development structure, and development drivers. From the development agents perspective, involving individuals, enterprises, and industries, the core mechanism is the "dual-wheel drive" of talent and capital.From the development structure perspective, counties serve as pivotal nodes in urban-rural integration, with carrier construction playing a hub-like role. From the development drivers perspective, key sources of momentum include the digitalization of urban and rural economies, equalization of public services, interconnected infrastructure, and green optimization of the ecological environment. These dimensions intertwine and synergize, collectively shaping the practical pathways and mechanisms for the two-way flow of urban-rural factors.

4.2.1 Development Actors

At the development actors level, a multi-tiered, multi-dimensional coordination mechanism must be established. At the individual level, improve the rural entrepreneurship support policy system, establish sound professional title evaluation and rights protection systems for "talent returning to the countryside," and provide support such as startup capital, tax incentives, and housing guarantees. Incorporate rural work experience into professional title evaluations and promotion considerations to attract college graduates and technical talent to return to their hometowns for entrepreneurship and employment.

At the enterprise level, innovative PPP models should guide social capital into rural infrastructure development and

industrial upgrading. Risk-sharing mechanisms must be refined, establishing a tripartite benefit-sharing framework among governments, enterprises, and farmers. Enhanced risk oversight will promote sustainable capital flow into rural areas.At the industrial level, promote deep integration of agriculture with cultural tourism, health and wellness, and other sectors to cultivate new "agriculture+" business models. Drawing on Guangdong's "Hundred Counties, Thousand Towns, Ten Thousand Villages Project" experience, achieve comprehensive revitalization through bidirectional extension of industrial chains. Foster new agricultural business entities and develop agricultural industrialization consortiums to facilitate organic integration between smallholder farmers and modern agriculture.

4.2.2 Development Structure

From a development structure perspective, counties serve as pivotal nodes for urban-rural integration. They must optimize spatial layouts to establish an integrated development pattern encompassing "county seats-towns-market towns-core villages-villages." Zhejiang's "Strong Village Companies" model effectively activates endogenous rural vitality by organically combining collective economies with market capital. County-level infrastructure development should prioritize spatial optimization and functional enhancement, creating "transit stations" and "reservoirs" for the flow of urban-rural resources.

Furthermore, as the fundamental unit for policy implementation, counties should fully leverage their pivotal role in allocating urban-rural resources. This involves establishing a unified urban-rural construction land market to optimize land resource allocation within county boundaries, strengthening county-level financial service systems, and developing inclusive finance to provide financial support for the flow of urban-rural resources.

4.2.3 Development Momentum

At the level of development momentum, multiple synergistic drivers provide sustained impetus for the two-way flow of urban-rural factors. Infrastructure connectivity serves as the material foundation, requiring improvements to urban-rural transportation, communications, and energy networks. This includes advancing integrated urban-rural transportation systems, accelerating the construction of new infrastructure such as rural 5G networks and IoT, and enhancing the efficiency of factor mobility.

Equalization of public services serves as the institutional safeguard. This requires establishing unified urban-rural public service standards, extending high-quality education, healthcare, and cultural resources to rural areas, narrowing the urban-rural gap, and creating a fair environment for factor mobility. Ecological conservation and green development represent a crucial direction. This entails advancing coordinated urban-rural ecological governance, developing green industries, establishing market-based and diversified ecological compensation mechanisms, and achieving optimal allocation of ecological resources.

The enabling role of digital technology is increasingly prominent. Technologies like big data and IoT optimize factor allocation efficiency—for instance, the "Rural Brain" project significantly enhances urban-rural resource integration through digital governance platforms. Concurrently, the decisive role of the market in resource allocation should be leveraged by establishing a unified urban-rural factor market system that promotes free flow and equitable exchange of factors. Strengthened government guidance and improved policy frameworks are essential to create a favorable institutional environment for bidirectional factor mobility between urban and rural areas.

5. Research Review and Outlook

5.1 Research Value

This study systematically reviews the bidirectional flow of urban-rural factors in the context of rural revitalization, offering both theoretical and practical value. Theoretically, it delves into factor mobility theory and urban-rural integration theory, clarifying the evolution of the concept of urban-rural factor flow and establishing a robust theoretical framework for future research. By analyzing current characteristics and challenges, it clearly reveals the opportunities and obstacles in the ongoing bidirectional flow process, providing practical grounds for developing targeted strategies.

Practically, the proposed driving factors and implementation pathways demonstrate strong operational feasibility. Regarding driving factors, it clarifies the respective roles of institutions, markets, governments, and society, emphasizing the importance of multi-stakeholder coordination. The implementation pathways unfold across three dimensions—development actors, structures, and drivers—encompassing multiple levels including individuals, enterprises, industries, counties, infrastructure, and public services. This provides concrete implementation directions for promoting the two-way flow of urban-rural factors.

5.2 Future Outlook

First, deepen research on the intrinsic connections among multiple theories to construct a more systematic theoretical

framework. Conduct differentiated studies on theoretical applications tailored to varying regional economic development levels, resource endowments, and sociocultural characteristics. For instance, explore how resource-based rural areas can leverage factor mobility theory to guide industrial transformation, or how ethnic-characteristic rural regions can integrate urban-rural integration theory to advance cultural heritage preservation alongside economic development.

Second, employ empirical research methods to quantitatively evaluate proposed practical pathways. Establish indicator systems to analyze the actual impact of different strategies on bidirectional urban-rural factor flows, identifying key influencing factors and weak links. For instance, assess regional variations in the attractiveness of county-level platforms for factor flows to provide data-driven support for optimizing county development strategies. Dynamically adjust and refine practical pathways based on evaluation outcomes to enhance their effectiveness and relevance.

Finally, explore practical pathways and mechanisms within the digital village context, focusing on the application potential of emerging technologies like artificial intelligence and blockchain in urban-rural factor flows. Investigate the use of digital technologies in areas such as rural land transfers and financial services to address issues like information asymmetry and trust mechanism deficiencies, ensuring the security and fairness of factor flows.

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Author Bio

Yuchen Guo (born October 2000); Female; Han Chinese; Weihai, Shandong; Master's Degree; research direction: Sustainable Development and Public Policy.