



The Impact of Rural Labor Transfer on Agricultural Economic Development

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Abstract. Rural labor transfer has been identified as a key determinant of agricultural economic growth, particularly under the strong national agenda promoting rural and agricultural development. This paper adopts an analytical framework structured around the sequence of “resource allocation – production efficiency enhancement – restructuring of operational returns” to investigate the multifaceted impact of labor migration on agricultural economic development. By deconstructing key mechanisms such as the transformation of production methods, enhancement of production efficiency, and changes in income distribution, the study reveals a dynamic pathway through which labor transfer improves resource utilization via land circulation, and accelerates agricultural mechanization through the feedback effect of non-agricultural income. The findings show that rural labor migration not only alleviates land fragmentation through factor reorganization but also enhances productivity through technology adoption, ultimately forming a positive cycle of “resource optimization – efficiency leap – income multiplication”. In contrast to previous studies that primarily focus on isolated economic variables, this study innovatively integrates the entire causal chain involving factor mobility, efficiency gains, and income restructuring. The analysis offers a novel perspective for understanding regional disparities in agricultural modernization. Moreover, this research substantiates a nonlinear dynamic between labor mobility and agricultural transformation, generating valuable theoretical implications for labor factor liberalization and the strategic refinement of the agricultural industry amid rural revitalization efforts.

Keywords: Rural Labor Transfer, Modern Agricultural Development, Transformation of Production Methods, Improvement of Production Efficiency.

1 Introduction

The year 2025 witnessed the publication of China’s 13th No. 1 Central Document, which was devoted to addressing key issues concerning agriculture, rural areas, and the farming population. The document emphasized the need to enhance agricultural efficiency, invigorate rural areas, and increase farmers’ income. It called for further deepening of rural reforms and steady advancement of rural revitalization. With ongoing progress in agricultural economic development, the improvement in the efficiency of

factor allocation has led to a labor supply exceeding the actual needs of agricultural production. The labor surplus in rural areas has prompted a structural shift of the workforce toward other regions and industries, forming an essential strategy for tackling the “Three Rural Issues” and advancing agricultural and rural modernization. [1]. According to the Lewis Dual-Sector Model, the transfer of rural labor from low-value-added, labor-intensive industries can release land resources and optimize the allocation of production factors, thereby creating favorable conditions for intensive and large-scale agricultural operations [2]. At present, as the extent of rural labor transfer deepens, its impact on agricultural economic development has gradually become apparent in various aspects, including modes of agricultural production, production efficiency, and rural household income. Consequently, this issue is receiving increasing attention and concern from society.

Recent academic studies have revealed that the ramifications of agricultural labor mobility extend far beyond the diversification of rural employment. More significantly, it introduces advanced production factors through industrial stimulation and productivity-enhancing effects, thereby fostering diversified modes of agricultural operation and management [3]. Existing studies suggest that the impact of rural labor transfer extends beyond merely improving the efficiency of labor market resource allocation. With the deepening of agricultural modernization, its effects demonstrate a synergistic nature, forming a dynamic equilibrium chain of resources, efficiency, and outcomes. Specifically, rural labor transfer facilitates the reorganization and reallocation of production factors, which in turn enhances production efficiency and income levels, generating a positive cycle of economic development. Based on this research context, the present study builds upon prior findings and adopts this logic chain as a framework to systematically examine the multidimensional and cascading effects of rural labor transfer. It focuses on three core dimensions: transformations in production methods, improvements in production efficiency, and the restructuring of income distribution. This research first investigates the phenomenon of land transfer, employing a subject-based classification analysis model to elaborate on the systematic transformation of production methods, including technological innovation in agriculture. Subsequently, the focus shifts to the dynamic evolution of input-output efficiency, through a quantitative assessment of how rural labor migration exerts a compound effect on agricultural productivity. Finally, the study returns to the labor transfer subjects themselves, constructing a bidirectional benefit assessment system to analyze both the positive promotion and the potential constraints of income redistribution resulting from labor migration. In terms of research design, the study emphasizes both intra-dimensional evolutions and the transmission pathways and coupling relationships among the three main components. By systematically deconstructing the overall influence of rural labor mobility on agricultural economic development, and integrating policy evaluation, this paper bridges theoretical research with practical applications for livelihood improvement. The findings aim to provide academically grounded and practically meaningful guidance for the formulation of scientific and effective rural support policies.

2 Transformation of Production Methods

Scholars have noted that the transfer of rural labor has broken the traditional boundaries of agricultural production and transformed conventional modes of farming. Agricultural producers have explored new forms of land contracting and leasing relationships, which represent a significant manifestation of changes in production methods [4]. This phenomenon of land transfer is not solely influenced by a single variable within the process of labor migration; rather, it results from the combined effects of multiple factors, including the distance to the migration destination, the ratio of earnings originating from non-farming sources, the scale of labor transfer, and national policy frameworks. Firstly, in terms of migration distance, farmers who relocate to more distant areas tend to transfer their land use rights to others, whereas those who migrate locally exhibit weaker intentions to transfer land [5]. Secondly, the proportion of income from land transfer within total household income is a critical determinant. When non-agricultural income constitutes a higher share of household income, farmers demonstrate a stronger willingness to transfer land, and vice versa. In addition, the scale of labor mobility significantly influences land transfer decisions. When the scale is small, consequences for crop productivity are limited, and farmers retain sufficient labor to maintain existing farming operations, resulting in low willingness to transfer land. However, when the scale exceeds a certain threshold, labor shortages become pronounced. In response to this imbalance in production factors, farmers tend to engage in land transfers to reallocate resources, thereby giving rise to land outflow phenomena [6]. Finally, in recent years, the state has implemented reforms to clarify land property rights, including the specification of land use rights and income entitlements. Meanwhile, supportive measures such as farmland fertility protection subsidies and agricultural insurance premium subsidies have provided institutional security for agricultural production. These favorable policies have further encouraged farmers to participate in land transfer. The aforementioned studies analyze the mechanisms by which labor transfer influences land supply from the supply-side perspective, thereby illustrating its role in driving transformations in agricultural production methods. From the demand-side perspective, the increasing need for land intensification and the development of modern agriculture is largely driven by another crucial manifestation of production transformation, including technological advancement in agriculture.

When the transfer of rural labor leads to a reduction in the agricultural workforce, producers adopt new methods and strategies to improve production efficiency in order to compensate for the economic loss caused by labor shortages [7]. Since the majority of the transferred labor force consists of young and middle-aged individuals, the rural labor structure has gradually become characterized by aging, feminization, and an increase in part-time farming. These structural shifts have prompted agricultural producers to adopt mechanized farming techniques, thereby reducing dependence on manual labor, updating traditional farming practices, and accelerating agricultural technological advancement [8,9]. This perspective applies not only to the outflow of rural labor but also to labor inflows. Inbound labor can likewise promote agricultural technological development by introducing modern technologies. These laborers often integrate into local agricultural production through embedded modes of participation. By leveraging

regional characteristics and benefiting from entrepreneurship support policies, they help restructure and refine localized development initiatives. Additionally, through agricultural technical training and expert guidance, modern agricultural knowledge is introduced and applied to real-world farming activities, thus further driving the advancement of agricultural technologies [10].

3 Improvement of Production Efficiency

3.1 Optimization of Input Efficiency

Building on the aforementioned impacts of rural labor transfer on land circulation and agricultural technological advancement, existing studies indicate that such labor migration has facilitated the further development of the rural land transfer market. This process has allowed contract farmers to consolidate larger tracts of land, facilitating the expansion of farming operations and fostering an environment conducive to the adoption of advanced agricultural technologies. Concurrently, the decline in both the quantity and quality of rural labor, coupled with rising non-agricultural income, has stimulated greater investment in agricultural mechanization. The integration of mechanical elements into agricultural production not only compensates for labor shortages but also enhances labor productivity, thereby producing a “mechanization replacing labor” effect. This effect both reduces human labor costs and opens up possibilities for non-labor-based production inputs [11]. The migration of production factors-particularly labor and capital-has led to interconnected patterns of agricultural input efficiency among eastern, central, and western China. Under the influence of spatial spillover effects, interregional efficiency disparities exhibit significant interactive characteristics. In the western and northeastern regions, the influence of rural labor transfer on the input efficiency of adjacent areas exhibits a U-shaped distribution. By contrast, in central China, such labor mobility demonstrates a positive association with enhanced efficiency in neighboring regions. This spatial interconnectivity resulting from cross-regional labor migration plays a substantial role in shaping the input efficiency of a given region [12].

3.2 Improvement of Output Efficiency

From the perspective of labor productivity input, the efficient utilization of land and the application of technological factors in agriculture are of critical importance. However, as input and output together form the core framework for measuring efficiency, research on production efficiency must not only focus on resource and technology input but also take into account the economic and social effects on the output side. Through land circulation, the substitution and diffusion of technological advancements, and the increase in capital investment, agricultural labor can be effectively replaced while ensuring stable agricultural output. Rural labor migration alters the composition of agricultural labor, which plays a pivotal role in improving total productivity. The resulting efficiency gains stimulate agricultural output and bolster overall economic performance.[13]. With respect to social output, the outflow of rural labor has enabled the

consolidation and intensification of farming activities, fostering more efficient and large-scale agricultural practices. This form of intensive farming reduces the total cost per unit of grain production and enhances the ability to withstand risks, thereby securing stable social output. From the perspective of the national economic system, the inflow of labor into secondary and tertiary industries has accelerated the development of these sectors, leading to industrial upgrading and increased government revenue. As a result, the state acquires greater resources to support agricultural development, thereby creating a more favorable macroeconomic environment for food production. This ensures a stable per capita grain supply and maintains the national food self-sufficiency rate [14].

4 Transformation of Income Distribution

4.1 Changes in Income Structure

According to the Lewis labor transfer model, differences in marginal returns to labor across sectors are a key driving force behind the migration of agricultural labor into industry. During this process, many farmers adopt a hybrid employment pattern that combines working in distant locations with periodic returns to their rural homes. This allows them to maintain a connection with their land while engaging in activities within the secondary and tertiary industries, thus facilitating a partial occupational transformation [15]. This transformation has diversified farmers' income streams, shifting from a predominantly agricultural income model to a mixed structure combining agricultural and non-agricultural earnings. From the standpoint of income composition, the rise of digital agriculture and the expansion of large-scale farming have intensified the demand for land consolidation and more efficient land use. Consequently, the proportion of transfer income generated during rural labor migration has significantly increased [16]. Meanwhile, wage income earned from urban employment substantially surpasses the income previously obtained from traditional farming activities. The concurrent rise in both transfer income and wage income has fundamentally altered the nature of rural households' income structure.

4.2 Changes in Income Distribution Patterns

The preceding analysis has demonstrated, from an income perspective, the economic benefits brought by rural labor transfer to the transfer subjects. However, in the actual process of income distribution, significant imbalances are evident. From an overall standpoint, rural labor migration results in varying degrees of land transfer and differences in employment types among rural laborers, which in turn leads to income disparity and the emergence of uneven income distribution. During the labor transfer process, disparities in wealth endowments and resource ownership among rural households become a critical factor. Low-income farmers, constrained by limited capital and land-holdings, often find it difficult to either lease in or lease out land. In contrast, higher-income households are more capable of renting land to expand their operations or leasing out land to obtain substantial rental income. This resource asymmetry further exacerbates disparities in transfer income. On the other hand, with respect to wage income,

differences in education levels, cultural capital, and skill proficiency among rural laborers result in significant variations in earned wages. Significant wage disparities emerge among rural migrant workers due to heterogeneous labor mobility patterns. The interplay of these differential transfer trajectories and wage incomes contribute to increasing unequal income distribution throughout the labor migration process. Ultimately, these disparities intensify intra-rural wealth polarization [17,18].

5 Conclusion

Chinese scholars have established a relatively systematic body of research concerning the rural labor mobility's influence on agricultural economic development. Overall, rural labor migration has effectively promoted the integration of agriculture into the modern economic system through a transmission mechanism that optimizes resource allocation, enhances production efficiency, and increases operational returns. This process forms a positive cycle of "resources-efficiency-returns". However, empirical studies reveal several critical issues that remain unresolved in the course of rural labor transfer. First, the inadequacies in national policies related to land use have resulted in loopholes in the definition of land-use rights, which hinder the smooth implementation of land transfer processes. Second, differences in individual wealth endowments and initial resource holdings lead to unequal gains during land transfer transactions, exacerbating income disparities and, to some extent, intensifying rural wealth polarization.

In summary, while rural labor transfer significantly influences agricultural economic development, the accompanying challenges must be duly addressed. In terms of policy practice, there is an urgent need to establish a dual-drive mechanism that combines institutional innovation with rights protection. Clarifying the land rights framework and reinforcing the protection of migrant laborers' interests are essential steps forward. From an academic perspective, future research should adopt cross-regional comparative analyses and case study approaches to explore the multifaceted impacts of labor migration. It is necessary to construct regionally adapted development pathways based on varying resource conditions.

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