

Governance of Urban Villages, Informal Employment, and Industrial Upgrading: An Analysis Based on the Perspective of Spatial Allocation of Factors

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Abstract

From the theoretical perspective of factor space configuration, this study systematically examines the intrinsic relationships and interaction mechanisms among urban villages, informal employment, and urban industrial structure upgrading. The core argument holds that urban villages, leveraging low living and operational costs, which attract a large number of low-skilled labor and informal economic activities within urban village areas, and creating a factor concentration space and cost adjustment system for low-end manufacturing that adapts to traditional urban service industries and low-end manufacturing. Large-scale state-led gentrification-led urban redevelopment restructures regional labor supply systems and raises local living costs, thereby inducing the cross-regional migration of low-skilled laborers. This urban renewal process further accelerates the high-end and service-oriented transformation of urban industrial structures. On the one hand, urban village renewal generates a transformation impetus effect, which improves the productivity of urban production factors and boosts the cultivation of knowledge-intensive industries. On the other hand, it creates a factor crowding-out effect: the operating costs of urban basic service sectors rise sharply, industrial supply chains are broken, and the sustainable progress of industrial upgrading is restrained. Through comprehensive analysis of existing literature, this study elucidates the underlying spatial political economy logic behind this evolutionary process, providing theoretical insights for developing inclusive urban renewal mechanisms and ensuring coordinated implementation of urban renewal policies with industrial development strategies.

Key words

Urban village governance; Informal employment; Industrial structure upgrading; Spatial allocation of factors

1. Introduction

China's urbanization has moved from the stage of scale expansion and incremental growth to a new stage of stock renewal, industrial quality improvement, and people-oriented development. This paper narrows research boundary to China's first-tier cities, the urban villages in first-tier cities that emerged from the dual land system in rural-urban areas are a unique spatial form in China's cities and also the core area for accommodating migrant populations and cultivating informal employment. At the same time, domestic cities are generally promoting industrial structure transformation and upgrading, gradually completing the transition from labor-intensive to technology- and knowledge-intensive industries. The spatial governance of urban villages and the upgrading of urban industries are not developed independently; they are linked by the core element of spatial flow, allocation, and reproduction, forming a deeply coupled interaction relationship. The demolition and renewal of urban villages are essentially a process of urban space reproduction, directly changing the spatial layout and factor allocation of the bottom-level laborers' living and business areas, and through the labor market, profoundly influencing the evolution path of urban industries.

The existing research has formed three independent research systems: First is the research on urban villages spatial evolution and renewal. Yin Xiaoying et al. analyzed the institutional generation logic of the informal space in urban villages [1]. And Chen Yingfang explained the capital and government-driven mechanism behind the transformation of urban villages from a spatial sociology perspective [2]. Dai et al. empirically verified the population relocation and spatial mismatch effects triggered by radical demolition with the case of Bai Shizhou in Shenzhen [3]. Second, the research on informal employment and the informal economy, Zhang Liyuan used CGSS data verified the core influencing factors of informal employment [4]. Liu Qingyun and Wang Weiqiang broke through traditional cognition and proposed the characteristics of iterative upgrading of informal business, and constructed an interaction theory between the informal economy and urban space [5]. And the third aspect, the research on industrial structure upgrading and labor adaptation, Zou Yinan and Shi Tengchao, Chu Zhiyuan, and other scholars systematically

demonstrated the interaction laws between industrial transformation and labor transfer [6,7].

The existing research achievements are abundant, but there are still research limitations: Most existing literature analyzes the spatial, informal employment, and industrial upgrading separately and rarely integrates these three aspects into a unified framework for systematic coupling research. The academic community has not yet reached a unified conclusion on the direction of the role of urban village renovation in industrial upgrading, and there are still differences and disputes between the positive pressure and negative crowding-out theories. Based on this, this paper takes the element spatial configuration as the core framework, systematically disassembles the element carrying function, spatial reconstruction mechanism, and the two-way transmission effect of urban village upgrading, clarifies the boundary conditions of the two mechanisms, and fills the fragmentation defect of existing research, providing theoretical support for urban renewal and industrial coordinated development.

2. Literature Review

Informal spaces within urban villages are a unique spatial morphology generated by institutional dislocations of the dual urban-rural system under rapid urbanization[1]. These spaces have fostered relatively self-contained economic and social operational systems: a multitude of micro and small operators run unregistered businesses by leveraging low-cost rental premises and unauthorized constructions inside villages, which has gradually shaped an agglomerated spatial landscape of urban informality[1]. Endowed with such spatial characteristics, urban villages have long fulfilled pivotal functions as suppliers of affordable housing, reservoirs of low-skilled labor, and auxiliary industrial infrastructure for basic urban sectors. Empirical research by Dai et al. on the urban renewal project of Baishizhou in Shenzhen illustrates that large-scale demolition pushes up overall urban operating costs, spurs the exodus of low-skilled laborers, eradicates informal industries, and fractures supporting industrial chains[3]. Two competing scholarly perspectives have emerged regarding urban village governance: radical large-scale reconstruction and inclusive regeneration. Though extant studies widely dismiss the crude one-size-fits-all demolition model,

few have quantitatively assessed the regulatory value of inclusive policies for industrial development. The peculiar informal spatial fabric of urban villages furnishes core spatial backing for the clustering and sustained existence of urban informal workers, serving as an essential precondition for the localization and growth of informal economies. Informal employment broadly denotes work without standardized labor contracts or comprehensive social insurance coverage, including casual migrant laborers, microenterprises operating within urban villages, street vending, and other analogous forms. Drawing on the 2015 Chinese General Social Survey CGSS2015 dataset, Zhang Liyuan corroborates that informal employment accounts for more than 58 percent of total urban employment in China. Household registration status, human capital stock, and regional economic development constitute the core determinants of workers' informal employment decisions. Rural hukou holders, individuals with low educational attainment, female workers, and those burdened with heavy childcare responsibilities display a stronger inclination toward informal work, and the relationship between employment selection and age follows a U-shaped curve[4]. Research by Ma Qiqing et al. demonstrates that informal employment hinders migrant workers' integration into public services and their formation of urban identity via economic exclusion and psychological estrangement, curbing their willingness to attain full citizen status[8]. The newly emerged 3.0 iteration of street vending—a novel informal economic format of the new era—delivers dual functions of employment absorption and industrial auxiliary support, and to some extent builds an infrastructure system covering residents' daily livelihood and rudimentary social security[5]. Meanwhile, the flexible staffing advantages of informal labor enable firms to adapt to cyclical industrial fluctuations and reduce operational expenses, acting as a critical stabilizer for intact urban industrial chains. As a vital labor reserve underpinning urban industrial growth, the size and stability of informal workforces are deeply intertwined with the restructuring and upgrading of urban industrial frameworks. Industrial upgrading comprises two dimensions: structural transformation and efficiency enhancement, which exert dual-sided influences on labor markets. Optimized industrial structures can effectively absorb surplus rural labor; however, the expansion of capital-intensive industries during the mid-to-late indus-

trialization stage creates a structural dilemma marked by "high economic growth paired with low employment elasticity"[7]. Retrospective empirical analyses of industrial upgrading conducted by Zou Yinan et al. confirm that China's industrial upgrading has produced an overall employment crowding-out effect. Deepening technological capital investment and intra-industrial factor misallocation persistently compress the space for labor-intensive jobs[6]. Even so, existing academic literature has not yet delineated the boundary between the two opposing effects of urban village regeneration: its capacity to drive industrial upgrading, and its tendency to dismantle matched industrial auxiliary systems.

3. Urban Villages as Factor Spatial Carriers: Spatial Anchoring Units for Low-skilled Labor and Informal Economy

The emergence of urban villages is a systemic outcome from the combination of China's dual urban-rural land system and rapid urbanization. The core contradiction is the pace of land urbanization, which is significantly faster than the progress of population urbanization. The urban built-up areas continue to expand and gradually enclose former rural collectively owned construction land within city boundaries. But, the ownership of collective land, planning controls, and housing development regulations have not undergone urbanization transformation at the same time, forming special spatial units that remain largely unconstrained by formal urban planning. From the perspective of spatial allocation of elements, urban villages serve two irreplaceable core functions: First, as low-cost residential space, providing a long-term spatial container for low-skilled labor; and second, offering low-barrier business premises that foster the development of informal urban economies. Together, these functions anchor labor and informal economic elements in space.

3.1 Low-cost Living Carriers: Core Transitional Space for Rural Migrant Laborers in Cities

As typical informal urban settlements with unregulated self-built constructions, urban villages bypass standard urban planning and infrastructure norms, greatly reducing housing costs. Their rentals are merely one-third of formal urban commercial housing, providing affordable long-term accommodation for low-income

rural migrants and new urban residents [9]. Scholarly research has verified its critical transitional role in labor urbanization. Migrant workers with unstable incomes and limited social security are excluded from formal housing, while urban villages accommodate large-scale rural labor migration and balance urban low-end labor supply and demand amid industrial expansion. Covering low-skilled migrants, unemployed graduates, and flexible local workers, urban villages sustain stable urban labor supply. Different from formal commercial and subsidized housing with strict thresholds and limited coverage, urban villages' informal housing fills the institutional gap in housing support for floating low-income groups.

3.2 Low-cost Business Incubation Space: Physical Field for the Survival and Development of Informal Economic Activities

The low shop rents, lenient regulatory oversight, and high population density in urban villages provide a natural ecosystem for small-scale informal businesses. Through study of Shenzhen's urban villages, these areas can develop closed-loop consumption and industrial support systems, enabling small merchants to operate with minimal costs and creating numerous flexible jobs at the same time [1]. The tiered development of informal businesses in these villages not only serves residents' daily needs, but also supports urban peripheral industries, and serves as a vital supplement to the city's industrial chain.

Zhang Liyuan's micro-data study demonstrates that workers with insufficient skills and no social security coverage can leverage urban village spaces to engage in self-employment or flexible work, creating a spatial integration pattern characterized by "low-income population concentration coupled with informal small-scale businesses" [4]. The Nonformal Economy 3.0 Succession Theory proposed by Liu Qingyun and Wang Weiqiang further refines traditional understanding, confirming that the informal economy during the urban renewal phase has transcended its low-end, disorderly nature; it can dynamically adapt to urban governance and industrial development needs, giving rise to new business models that co-evolve with urban space and thereby enhancing the city's industrial support system [5].

4. The Industrial Value of Informal Employment: The Fundamental Support System for Urban Economic Operations

Large-scale informal employment gathered in urban villages is not a marginal supplement to the urban industrial system, but a basic support for the operation of the entire urban economy with dual core functions. First, it serves as the main labor supply for traditional labor-intensive industries and basic service industries, constructing a basic support system for urban industrial operation. Second, it connects upstream and downstream industries and links through low-cost supporting services, fills the service gaps of the formal industrial system, and acts as a linkage medium for industrial division chains. These two functions act together, reducing the overall operating costs of urban economic factors and forming a unique informal labor reproduction system.

4.1 Sustaining the Operation of Traditional Industries and Stabilizing Urban Basic Service Supply

Urban basic service sectors and low-end manufacturing industries heavily rely on informal employment as their primary labor source. Featuring low profit margins, flexible labor needs and low skill requirements. In contrast, the adoption of formal full-time recruitment procedures will substantially raise operational expenditures. Instead, low-cost informal employment underpins their sustainable operation. Empirical evidence from Ma and Gong verifies that informal employment serves as the major income source for urban migrant workers and a critical labor supply guarantee for construction and service enterprises [8].

Informal labor's flexible working patterns well accommodate industries' seasonal and cyclical employment volatility, covering peak-season construction recruitment, e-commerce logistics temporary staffing and holiday catering service demands. Such labor can rapidly match market supply and demand, eliminating the idle labor costs of permanent full-time staffing. A shortage of informal labor would trigger workforce deficits and service price hikes in urban basic services and low-end manufacturing, undermining residents' daily life

and SME production. Fundamentally, the steady labor supply of informal groups underpins the continuous and stable operation of urban basic industries.

4.2 Constructing an Informal Labor Reproduction System and Regulating Urban Overall Costs

Labor reproduction covers basic living expenditures on housing, catering and daily consumption that sustain continuous labor output. The integration of urban villages and informal economy forms a unique low-cost labor reproduction system distinct from the formal market. Low-cost housing and affordable daily services in urban villages greatly reduce workers' living expenses, enabling them to accept lower wages and cutting enterprises' overall employment costs. This informal system provides implicit cost subsidies for urban formal economic sectors, lowers average labor costs, and sustains the cost competitiveness of manufacturing and service industries during urban industrial accumulation.

In the early and middle stages of urban capital accumulation when industries cannot bear high labor costs, urban villages and informal employment curb factor price hikes and maintain sufficient low-cost labor supply. The collapse of this informal system will raise workers' living standards, force enterprises to raise wages, trigger a systematic increase in urban labor costs.

4.3 Filling Industrial Chain Supporting Gaps and Realizing Linkage Between Formal and Informal Industrial Links

The modern urban industrial system contains multi-level division chains. High-end manufacturing and modern service industries focus on high-value-added core links, leaving a large number of fragmented, low-profit terminal supporting services that formal enterprises are unwilling to undertake due to low returns, which are exactly filled by informal micro businesses.

From the perspective of industrial ecosystem integrity, diversified business coexistence is the foundation of sustainable urban industrial development, and high-end industrial clusters cannot operate without the support of grassroots supporting service industries. The low-cost supporting network formed by the integration of informal employment and urban village space completes the

final link of industrial division, avoids industrial chain faults, serves as an effective medium for industrial chain connection, and maintains the diversity and integrity of the urban industrial ecosystem.

5. Spatial Reconstruction of Urban Villages' Renewal: The Shaping Mechanism of Gentrification on Labor Supply

5.1 Rent Premiums from Upgraded Living Space and Dual Outflow Paths of Low-skilled Labor

After urban village demolition, original high-density low-cost self-built houses are replaced by high-end commercial residential buildings and apartments, leading to an obvious increase in housing rents and purchase costs. Low-income and low-skilled laborers originally living in urban villages can not afford higher living costs, forming two labor outflow paths. The first is intra-city spatial transfer. Workers migrate to urban suburbs, unmodified urban villages and suburban self-built houses, resulting in longer commuting distances, increase time and traffic costs, and reduced labor supply and working time. The second is cross-city labor loss: a large number of migrant workers leave first-tier cities for lower living cost cities due to rising living costs, this directly leads the low-skilled labor supply scale in urban areas and surrounding industrial parks.

The spatial distribution of the labor structure has also changed. High-end industries such as finance, technology and business gather in city centers, resulting in spatial labor mismatch. Core urban industries require basic service supporting facilities, while grassroots laborers are forced to move away due to high living costs, separating labor supply from employment demand in space and disrupting the original labor market supply-demand balance. The follow-up research on the renewal of Baishizhou urban village in Shenzhen by Dai et al. confirms this mechanism [3]. Large-scale overall demolition and involuntary population migration disintegrate long-term stable local labor communities, break the coupling relationship among labor living space, employment space and urban industrial space, cause

persistent spatial mismatch, and further aggravate the shortage of basic services and industrial supporting facilities in central urban areas [3].

5.2 Collapse of Informal Economic Survival Carriers and Large-scale Decline of Micro and Small Businesses

Low-cost shops and self-built business sites in urban villages are the only adapted operating spaces for informal micro businesses. Demolition and renewal directly destroy the physical carriers for informal economic survival. The reconstructed commercial spaces are standardized shopping malls, commercial streets and office building bottom shops with sharply increased rent, property fee and entry thresholds. Micro businesses engaged in affordable catering, maintenance and retail are forced to close down due to unbearable operating costs; a few surviving businesses transfer all rental costs to commodity and service prices, pushing up urban basic living service prices.

Hu proposed that urbanization and industrial upgrading rely heavily on spatial factor reallocation, and urban village demolition is a typical government-led land factor redistribution practice, with laborers and micro business operators passively adapting to spatial changes [10]. There are no alternative carriers for informal economy attached to urban village informal networks. The entry rules and cost standards of formal commercial spaces only adapt to large-scale brand enterprises, leaving no living space for individual informal micro businesses. The continuous shrinkage of urban informal economic scale leads to the simultaneous decline of grassroots supporting service supply capacity.

6. Two-way Transmission Effect and Theoretical Divergence of Spatial Reconstruction on Industrial Upgrading

Urban village gentrification reconstructs the scale, spatial distribution and cost of labor supply, its changes are transmitted to the entire industrial system through the labor market. But there is no unified conclusion on its impact on high-end industrial upgrading, forming two opposing logics: the positive industrial forced transfor-

mation mechanism and the negative factor crowding-out mechanism.

6.1 Industrial Forced Transformation Mechanism: Rising Factor Costs Promote Industrial High-end Transformation

Studies supporting the positive effect argue that, the decrease of low-skilled labor supply and systematic rise in employment costs form external factors to force urban industrial upgrade through two main paths: backward industry elimination or technological innovation. First, low-value-added backward industries lose profitability due to rising labor costs and choose to migrate outward or shut down, exiting the urban industrial system and releasing core factors such as land, talents and capital for high-value-added industries including finance, science and technology innovation, and cultural creativity, promoting the urban industrial structural transformation of "optimizing secondary industries and developing tertiary industries". Second, to address the continuously rising labor costs, surviving enterprises increased investment in automated equipment and digital technological transformation to replace low-skilled labor, then adjust talent recruitment structure by reducing low-skilled positions and expanding high-skilled teams engaged in research, technology and operation, and transform towards knowledge and technology-intensive businesses to realize internal value chain upgrading.

Zou and Shi analyzed the interactive relationship between industrial upgrading and labor demand, pointing out that industrial high-end transformation reduces dependence on low-skilled labor and increases demand for high-skilled talents [7]. The disappearance of low-cost labor supply brought by urban village renewal exactly accelerates this transformation process [6]. Meanwhile, local governments can take the opportunity of urban village renewal to plan industrial parks and scientific and technological innovation carriers, introduce supporting policies for high-end industrial settlement, and actively guide the upgrading of industrial structure, forming a positive cycle of coordinated development between spatial governance and industrial upgrading.

6.2 Factor Crowding-out Mechanism:

Damaged Grassroots Service Ecology Restricting Sustainable Industrial Upgrading

Studies supporting the negative inhibitory effect hold that, radical large-scale urban village gentrification destroys the complete urban economic ecology and causes crowding-out risks that restrict inclusive and sustainable industrial upgrading. This mainly reflected in these aspects. First, the shortage and price rise of basic services increase the overall operating costs of various industries. And also increase employees' living costs, forcing enterprises to raise wages to retain talents, increasing overall operating costs and weakening urban attractiveness for high-end enterprises and innovative talents. Second, the integrity of the urban industrial chain is damaged. After the rapid disappearance of informal micro businesses, formal enterprises have to choose high-cost outsourcing or self-supporting services, forced extending the production and service chain, increasing operating cost and damaging the local industrial division system. Liu and Wang further supplemented that iterated new informal business forms can accurately match refined supporting demands of modern urban industries, and radical renewal will destroy the modern adapted informal service system and aggravate industrial chain supporting imbalance rather than only affecting traditional low-end services [6]. Third, the urban diverse social ecology tends to be single. Urban villages usually accommodate groups with different incomes, skills and regional backgrounds and form an inclusive urban social ecology. Comprehensive demolition makes urban space tilt towards high-income groups, simplifies social stratification, damage innovative vitality, and it is not conducive to the long-term development of innovative industries such as science and technology innovation and cultural creativity. The empirical research of Dai et al. further verified that the overall renewal of informal communities not only causes labor factor loss, but also collapses long-term accumulated informal socio-economic networks, whose negative impact on urban industrial ecology is long-term and irreversible [3].

In summary, radical gentrification transformation focusing solely on land value appreciation and urban image, while ignoring grassroots industrial supporting and sustainable labor supply, will trigger the factor crowding-out mechanism, cause industrial system faults,

and fail to achieve healthy and long-term industrial upgrading.

6.3 Functional Boundaries of the Two Mechanisms: Core Causes of Academic Divergence

The core reason for the two opposing conclusions in existing literature is that previous research often overlooks the constraints imposed by heterogeneity conditions, do not distinguish the effects of different urban renewal modes, the final outcomes of urban industrial foundation and supporting policies. If cities provide low-cost rental housing, micro commercial blocks, labor skill training and social security policies during urban village renewal, will smoothly realize the spatial transition of low-skilled labor and retain the living space of basic informal economy, and the industrial forced transformation mechanism will be released and the factor crowding-out effect will be greatly weakened. In contrast, in one-size-fits-all comprehensive demolition mode without supporting buffer policies, the factor crowding-out effect will take the lead and inhibit the positive industrial upgrading effect. Most existing studies only demonstrate a single mechanism independently, lacking comparative analysis of the comprehensive effects of the two mechanisms under different governance models, which is the core shortcoming of current research divergence.

7. Conclusions

Based on the unified analytical framework of factor spatial allocation, this paper integrates literature on urban village governance, informal employment and industrial structure upgrading, and clarifies the complete transmission logic of the three, drawing three core conclusions. First, urban villages are low-cost factor spaces spawned by institutional gaps in urbanization, undertaking two core functions of long-term low-skilled labor accommodation and informal economic cultivation. Low-cost housing and business sites realize the long-term spatial anchoring of grassroots labor and micro economic factors. Agglomerated informal employment builds a basic support system for urban industrial operation and a linkage medium for industrial division chains, constructs an informal labor reproduction system, regulates urban overall factor costs, and improves the multi-level indus-

trial division network. Second, gentrification-oriented large-scale demolition and renewal is a process of land factor reallocation, which collapses the original low-cost factor equilibrium from living and operating spatial dimensions, causes intra-city transfer or cross-city loss of low-skilled labor and large-scale decline of informal micro businesses, and comprehensively reconstructs the scale, cost and spatial distribution of urban labor supply. Third, factor spatial reconstruction has dual mechanisms affecting high-end industrial upgrading. On the positive side, rising labor costs and shrinking low-end labor supply promote enterprise technological transformation and backward industry elimination, releasing space for high-end industrial development. On the negative side, damaged grassroots service ecology, missing industrial supporting links and rising urban operating costs trigger the factor crowding-out mechanism and restrict the healthy and sustainable upgrading of the industrial system. The comprehensive effect of the two mechanisms is not fixed, depending on the improvement degree of supporting buffer policies in urban village renewal.

In general, urban village low-cost space and informal economy are not phased burdens for urban development, but key factor carriers supporting industrial gradient development and diverse urban economic operation. Radical unbuffered demolition breaks the low-cost balance of "human-land-industry" and triggers chain negative impacts on the labor market and industrial system. Only by balancing land value appreciation, urban image improvement and the survival demands of grassroots labor and micro businesses can the coordinated development of spatial governance and industrial upgrading be realized.

Based on the existing research gaps, future research can be deepened: First, carry out multi-mode comparative empirical research, measure the industrial effects of different renewal paths combined with the informal business iteration theory. Second, conduct long-term dynamic tracking research to make up for the limitations of existing short-term cross-sectional studies and accurately calculate the long-term net effect of industrial evolution after renewal.

At the policy level, future urban renewal should

shift to inclusive governance. By arranging low-cost living and commercial spaces and improving labor empowerment policies, it can buffer the risk of factor crowding-out, release the vitality of industrial transformation, and finally realize the coordinated and sustainable development of urban spatial renewal, stable employment and industrial quality improvement.

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