

The "Hollowing Out" of Cross-jurisdictional New Towns in Metropolitan Regions: Evidence and Responses from the Shanghai-Jiangsu-Zhejiang-Anhui Boundary Area

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Abstract: Under China's strategy of fostering modern metropolitan regions, the boundary area between Shanghai, Jiangsu, Zhejiang, and Anhui has expanded rapidly through the influence of core cities. Cross-jurisdictional new towns have become emerging growth nodes for advancing regional integration. As the growth model changes, however, mismatches between spatial development and available resources have generated a hollowing-out dilemma. This paper reviews the theoretical and practical evolution of metropolitan cross-jurisdictional new towns, identifies their development paths and types, and constructs a population-space imbalance index to assess hollowing out in the study area. Three manifestations are found: housing vacancy, delayed construction, and inefficient or idle industrial space. Their causes include excessive land supply and developer land banking, multidirectional population return and aging, and internal and external constraints on industrial development. The paper proposes responses centered on multilevel governance, innovation in the use of the existing housing stock, and deeper industrial cooperation.

Keywords: cross-jurisdictional new town; hollowing out; population-space imbalance; metropolitan region; Yangtze River Delta

Funding note: National Natural Science Foundation of China projects "Formation Mechanisms, Types, and Governance Responses for Integrated Development of Cross-boundary Peripheral Cities in Metropolitan Regions" (42271198) and "Cross-boundary Development Patterns, Driving Mechanisms, and Collaborative Governance in Interprovincial Adjacent Areas: The Yangtze River Delta" (42301270); Jiangsu Social Science Fund project on cross-regional ecological and environmental coordination in Jiangsu's provincial boundary areas.

Improving regional integration and building cooperation across administrative boundaries are central to Chinese modernization. Since Yangtze River Delta integration became a national strategy in 2019, the Shanghai-Jiangsu-Zhejiang-Anhui boundary area has served as an important testing ground for integrated policy [1]. Cross-jurisdictional new towns combine the functions of spatial carriers and policy instruments: they accommodate regional flows and industrial coordination while embodying institutional innovation in intergovernmental cooperation. National strategy has supported collaboration between major cities and adjacent areas [2-3], institutional experimentation in the Yangtze River Delta Eco-Green Integrated Development Demonstration Zone [4], and locally initiated interprovincial cooperation zones. Relying on development zones, industrial parks, and large residential areas [5], these places absorb population and industrial spillovers and have become important nodes of integration and urbanization [6].

Changes in land supply and demand and in the growth model have exposed mismatches between built space and actual resource use [7]. Large-scale property development has produced housing well beyond local population demand, while extensive industrial land has not generated expected returns. Vacancy, declining property markets, idle industrial space, industrial downgrading, and capital depreciation have followed. Since 2018, the research team has tracked cross-jurisdictional new towns

around Shanghai, Hangzhou, Nanjing, Urumqi, and other cities through interviews, questionnaires, and policy research. This study uses that evidence to identify hollowing out in the Yangtze River Delta boundary area and to develop governance responses.

1 Theoretical Origins of Metropolitan Cross-jurisdictional New Towns

1.1 Growth through City-region Networks

The theoretical and policy understanding of metropolitan spatial structure has evolved from monocentric expansion to spatial linkage and multilevel networks [8]. After the Second World War, Western urban regions shifted from monocentric to polycentric structures [9]. From the 1980s, global city-network theory placed metropolitan organization within global economic, financial, and service systems. Spaces of flows became a major force in regional restructuring [10], enabling metropolitan peripheries to participate actively in global divisions of labor [11-12]. Chinese planning has explored metropolitan spatial organization since the 1950s. Beijing, Shanghai, Guangzhou, Nanjing, and other cities strengthened polycentric structures through successive master and regional plans [13-15].

The reconstruction of metropolitan urban systems has intensified regional flows of economic and social factors [16]. Adjacent counties and cities use their location and land resources to participate in core-city economies, gradually forming cross-jurisdictional new towns. Frequent commuting and other cross-boundary flows have improved resource allocation [17] and generated active development forms [18]. Between 2001 and 2023, construction land in the interprovincial boundary area of Shanghai, Jiangsu, Zhejiang, and Anhui increased from 6,040.9 to 11,319.5 km², an average annual increase of 2.9 percent. Expansion was particularly evident around Shanghai, Nanjing, Hangzhou, and Xuzhou.

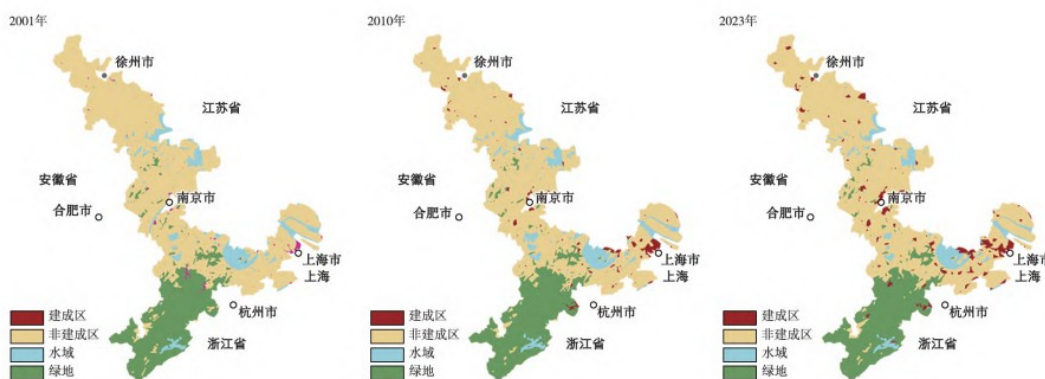


Fig. 1 Changes in urban construction land in the Shanghai-Jiangsu-Zhejiang-Anhui boundary area, 2001-2023.

Source: compiled from the relevant dataset [19].

1.2 Cross-jurisdictional New Towns as Emerging Regional Nodes

Cross-jurisdictional new towns are economic outcomes of urban growth strategies and new nodes for capital reproduction [20]. Initially, many supplied agricultural products and services. With information technology and networked urbanization, entrepreneurial local governments and market actors formed growth coalitions. Large-scale land development created industrial districts, residential new towns, and tourism or health destinations that attracted capital from core cities. New-town

planning was expected to support local growth, land-asset operation, and place marketing [21], and industrial parks and property projects quickly established the spatial framework.

Different endowments and opportunities produced industrial, residential, ecological, and comprehensive development types [22-23]. These towns formed new reciprocal relationships with core cities [24], accumulated science parks, gated communities, shopping centers, and other new landscapes [25], and entered regional functional networks. Some developed more balanced employment, housing, infrastructure, and services [26]. They have consequently become cross-regional cooperation nodes with a defined role in regional specialization [27].

Table 1 Types and representative cross-jurisdictional new towns in the study area

Type	Characteristics	Representative areas
Industrial	Long-term industry-led urban development and close regional production cooperation	Huating-Liuhe; Dingshan-Chahe
Residential	Housing-led reception of migrants and suburbanizing residents from core cities	Anting-Huaqiao-Baihe; Qiaolin-Wujiang; Pukou-Nanqiao
Ecological	Cross-boundary development organized around ecological coordination	Yangtze River Delta Eco-Green Integrated Development Demonstration Zone
Comprehensive	Integrated transport, commerce, public services, and regional governance	Jiangning-Bowang Cross-boundary Integrated Development Demonstration Zone

Source: summarized from references [19-20].

1.3 Identifying Hollowing Out

Hollowing out occurs when population and industrial concentration lag behind the expansion of built-up space, producing low land-use intensity and weak population carrying capacity. Because population concentration directly reflects actual urban vitality, this study uses a population-space imbalance index (PSI): $PSI = 1 - A_{\text{high-density}} / A_{\text{built-up}}$. $A_{\text{high-density}}$ is the total area of grid cells with at least 2,000 persons per km², following established studies [28-29], calculated from 2023 LandScan data [30]. $A_{\text{built-up}}$ is the built-up area derived from impervious surfaces in the 2023 China Land Cover Dataset and corrected with high-resolution Google Earth imagery. Values closer to 1 indicate a larger gap between built space and resident population.

Among fourteen new towns along the Shanghai-Jiangsu, Shanghai-Zhejiang, and Jiangsu-Anhui boundaries, eleven, or 79 percent, had PSI values above 0.50. Four exceeded 0.90: Dushangang Economic Development Zone, Xiangfudang Innovation Valley, Loujiang New Town, and Nanqiao New Town. Cihu High-tech Zone showed no clear hollowing, Huaqiao International Business City had a PSI of 0.13, and Bowang's main urban area had a PSI of 0.35. Average imbalance was 0.44 along the Shanghai-Jiangsu boundary, 0.53 along Jiangsu-Anhui, and 0.70 along Shanghai-Zhejiang.

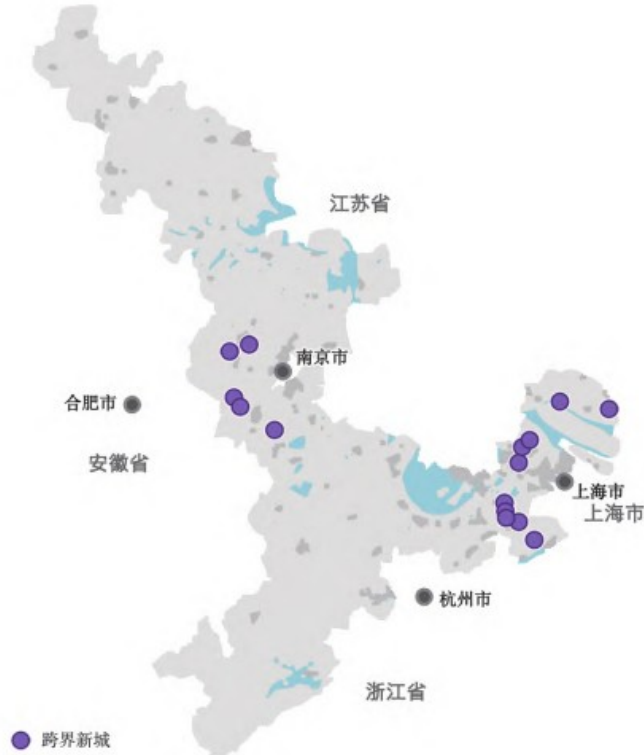


图2 沪苏浙皖边界地区的跨界新城分布示意

Fig. 2 Distribution and hollowing-out identification of cross-jurisdictional new towns in the Shanghai-Jiangsu-Zhejiang-Anhui boundary area

2 Manifestations of Hollowing Out

2.1 Housing Vacancy: Mismatch between Supply and Actual Residence

Property development was widely used to accelerate growth and attract residents during the expansionary phase of urbanization. In many peripheral locations, however, housing construction became detached from population concentration, and occupancy often remained below one third. Large projects in Nanqiao District, Chuzhou, showed nighttime lighting rates below 30 percent; one resident estimated occupancy in a large high-rise project at about 15 percent (interview CZ102401). Similar vacancy has appeared in Qidong, around Shanghai, Wuhan, and Zhengzhou. This pattern reflects housing-led suburbanization [31] without a matching permanent population.

2.2 Delayed Construction: Mismatch between Commitments and Implementation

A weaker market has exposed discontinuities in housing construction and public-service provision. Projects in Wujiang, Chuzhou, Kunshan, Langfang, and Yanjiao have been suspended or delivered late. Once expansion exceeds a reasonable threshold, project scale and developer finance decouple, causing funding breaks and unfinished buildings. Promised hospitals, schools, universities, and commercial

facilities have also failed to materialize. Public services intended to support regional coordination have sometimes become marketing devices, weakening governmental credibility and reducing residents' basic welfare.

2.3 Idle Industrial Land: Mismatch between Spatial Supply and Investment

Long-term outward expansion has created large areas of approved but unused, idle, or low-efficiency industrial land. Governments expected inexpensive industrial land and subsidies to attract projects and produce future tax revenue. Weak demand has instead left land banks unsold and tightened local finances. Nanqiao, for example, reported approximately 5,000-6,000 mu of approved but unsupplied land and an annual disposal requirement above 25 percent (interview CZ102402). Industrial land is also leased for up to fifty years although Chinese firms survived for only 7.98-8.99 years on average from 2009 to 2022 [32]. When firms close, merge, or relocate, land frequently remains idle and can lock the local economy into a low-end structure.

3 Causes of Hollowing Out

3.1 Excessive Land Supply and Developer Land Banking

Metropolitan suburbanization encouraged local governments and firms to form growth coalitions. Governments used advance residential land development to obtain off-budget revenue and subsidize infrastructure, while developers acquired large areas at relatively low prices, attached projects to core-city brands, and promoted them through city marketing. Real-estate prosperity stimulated related industries and created a land spillover effect. The resulting government land supply and corporate land-banking mechanism produced excessive housing supply and concealed risks of inflated prices and vacancy.

Rapid price increases also turned housing into an investment asset. Purchases without residence and speculative stockpiling supported an overheated market. As demand adjusted, prices and liquidity declined, unfinished projects discouraged buyers, and expected investment returns fell. Housing moved from an investment-driven price bubble into rapid depreciation, creating a negative feedback chain of falling value, shrinking investment, and continued physical expansion.

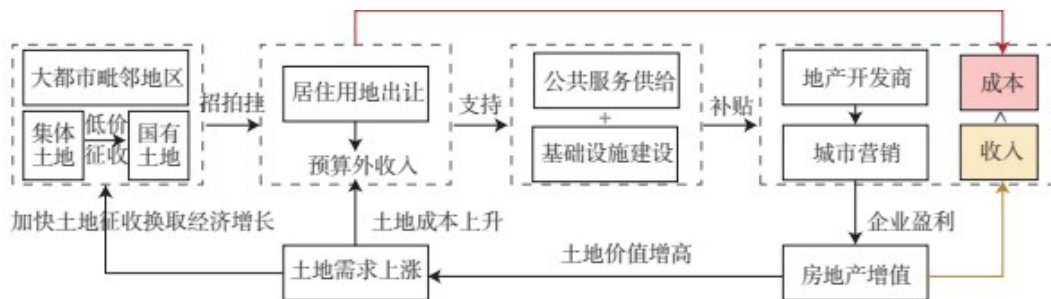


图3 增长主义驱动下的房地产建设

Fig. 3 Real-estate development driven by growth-oriented governance

3.2 Multidirectional Population Return and Aging

Hollowing out is also a product of social-spatial restructuring. A residential-workplace division with core cities attracted commuters and migrant workers, but changing personal capital, labor markets, and economic conditions produced several return flows. Some young residents moved back to core cities as their income and mobility increased and central-city housing prices declined. Migrant workers facing weaker business conditions and employment after 2020 returned to registered hometowns or moved to markets with higher returns [33]. Vacated housing was difficult to sell or relet.

Aging has intensified at the same time. Some older parents exchange central-city housing for improved housing for their children and move to less expensive boundary new towns; some metropolitan migrants purchase housing there for parents from other provinces. Population outflow combined with elderly in-migration locks housing into an aging demographic structure, contributes little to industrial and construction demand, and raises public-service and social-security needs. The result may be a long-term spiral of decline.

3.3 External and Internal Constraints on Industrial Development

Administrative barriers remain significant despite policies promoting cross-regional integration. Boundary new towns reserve excessive land and complete procedures in advance in anticipation of major projects. Core cities, constrained by territorial spatial quotas, may concentrate ecological redlines and permanent basic farmland in boundary areas. Industrial parks on one side can therefore face ecological or farmland controls on the other, preventing agreed industrial cooperation. Continued land supply and subsidies then generate a cycle of oversupply and value dilution, a mismatch between infrastructure costs and tax returns, higher local debt, land speculation, and improper industrial-land use [34].

Internally, many new towns remain locked into low-end industries and have limited capacity to attract innovation. The exit of logistics, textiles, building materials, and other labor-intensive industries can leave production space, worker housing, and services vacant. Firms with weak performance leave poor-quality factories, but lower rent gaps and renewal returns than in core cities make market-led redevelopment difficult [35]. A broader decoupling of construction-land expansion from economic growth further requires a shift in land and property development [36].

4 Policy Responses to Hollowing-out Risks

Risk prevention is necessary for economic stability and high-quality development. Responses should combine institutional construction, innovation in stock utilization, and deeper regional cooperation.

4.1 Establishing a Multilevel Risk-resolution Mechanism

Hollowing-out risk should be incorporated into the annual agenda of the Yangtze River Delta Regional Cooperation Office. The office should coordinate top-level housing and industrial strategies, distribute annual tasks, and develop legally effective cooperation agreements with compensation and fiscal deduction mechanisms. Shanghai, Jiangsu, Zhejiang, and Anhui should establish a joint action group involving development and reform, housing, finance, social capital, professional groups, and local residents. A common platform should survey vacancy and idle land and supervise project initiation,

approval, completion, delivery, and service. New towns should also be classified according to their actual regional function, replacing the assumption that each should operate as a rapid-growth pole.

4.2 Diversifying the Activation of Existing Housing

Cross-regional housing-voucher resettlement could include eligible vacant units in a common inventory led by Shanghai, Nanjing, Hangzhou, Hefei, and adjacent counties. Rules should define eligibility, procedures, rewards, annual quotas, and the scale of use. Municipal governments can combine repurchase, direct subsidies, and broker-assisted sales with housing trade-in programs and affordable-housing acquisition. Market-based participation by brokers, developers, and households can activate stock gradually. Age-friendly facilities, improved infrastructure, purchase subsidies, and other measures can retain and attract residents.

4.3 Deepening Industrial-space Reuse and Cross-boundary Cooperation

A special industrial-coordination plan for interprovincial boundary areas should align policies across the Yangtze River Delta, reduce homogeneous competition with core cities, and build a differentiated production network. Each new town should inventory approved but unsupplied, idle, and low-efficiency industrial land, maintain a dynamic closed list, and adopt site-specific disposal. Cooperation zones can support divisions such as research and development plus commercialization, headquarters plus production bases, and final products plus supporting industries. Experience from Zhangjiang High-tech Park can inform both forward enclaves in boundary towns and reverse enclaves in core cities, allowing innovation, talent, and production to circulate across jurisdictions.

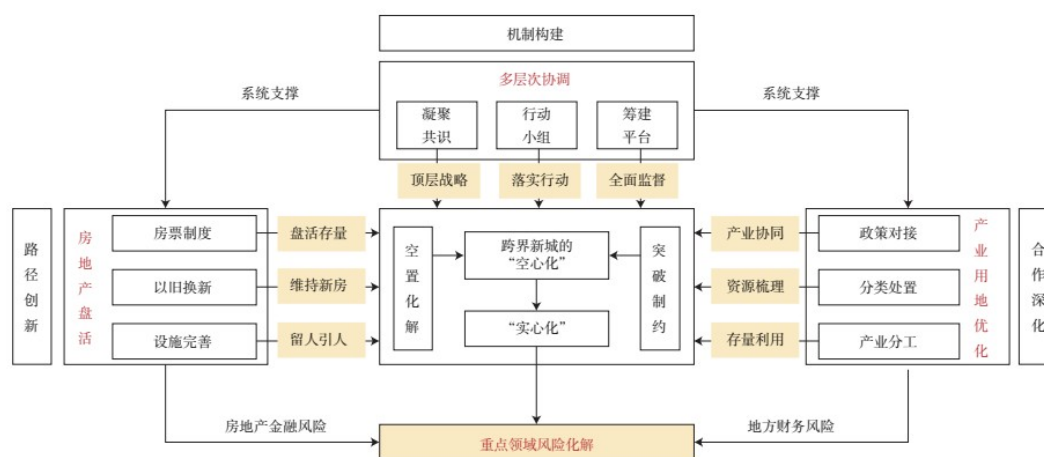


图4 大都市跨界新城“空心化”风险化解的对策框架

Fig. 4 Strategic framework for mitigating hollowing-out risks in cross-jurisdictional new towns

5 Conclusion

The Shanghai-Jiangsu-Zhejiang-Anhui boundary area has become an important arena of institutional innovation, and its cross-jurisdictional new towns are growth nodes in regional specialization. The analysis identifies housing and industrial hollowing and clarifies their governance implications. First, economic growth is increasingly decoupled from land input, and property-led expansion cannot be sustained. Land supply must be controlled to avoid a fiscal Ponzi cycle, and existing

land capital must be managed more effectively. Second, local resource potential should be reassessed to prevent inefficient land and financial investment and to reposition new towns within regional networks. Urban governance during China's transition should move away from growth strategies designed to maintain expansion and accumulate initial capital [37]. Hollowing out can become the point of departure for a stock-oriented development strategy that converts risk pressure into development capacity and supports deeper regional integration.

Notes

- ① Interview codes indicate place and date. CZ102401 refers to a resident of Nanqiao District, Chuzhou, interviewed on 24 October 2024; CZ102402 refers to a Chuzhou government employee interviewed on the same date.
- ② Source article on a large Qidong property project: <https://mp.weixin.qq.com/s/v1n8y7CQcf-T2fwdjksYzQ> (2024-11-24).
- ③ Source article on metropolitan property decline: <https://mp.weixin.qq.com/s/LkE4NdWoHEqXy72lqjLcvA> (2024-06-13).
- ④ Source article on Pingyuan New Area: <https://mp.weixin.qq.com/s/N7d9kCaw9RfpwuepQ5AJ6g> (2018-11-28).
- ⑤ News report on unfinished projects around Beijing: <https://baijiahao.baidu.com/s?id=1787488574927813564&wfr=spider&for=pc> (2024-01-08).
- ⑥ Under China's current industrial-land policy, the maximum grant term for industrial land-use rights is fifty years.

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