

Urban Land Use Regulation and Housing Affordability: Theoretical Frameworks and Research Advances

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Abstract

Against the dual context of advancing high-quality urbanization and sustained housing price regulatory policies, urban land regulation exerts far-reaching effects for urban housing price fluctuations and residents' housing affordability, thus emerging as an important research theme within territorial spatial governance and people's housing security fields. This study shows the complete theoretical system linking urban land regulatory rules and housing affordability. On the basis of foundational studies carried out by Glaeser and Gyourko, the work integrates China's unique urban land management institutional arrangements alongside the real residential housing conditions nationwide. It clarifies the specific definitions and operational roles of different land regulatory tools, and generalizes how land restriction policies affect commodity housing prices, the provision of low-cost residential housing, as well as housing affordability disparities across distinct social groups. Following the above analytical work, this article sorts out unresolved research deficiencies and divergent academic viewpoints, and further lays out prospective research methods. The research conclusions intend to supply theoretical support and practical decision-making references for implementing refined urban land administration, maintaining the steady operation of real estate markets, and safeguarding residents' rational housing rights and interests in China.

Key words

Urban land use regulation; Housing affordability; Housing supply

1. Introduction

Cities worldwide are collectively troubled by the problem of residents who cannot afford local housing.

The long-term increase in real estate prices, coupled with the growing financial pressure on middle and low-income residents, indicates structural limitations in the housing supply system. Many quantitative studies

have confirmed that land management rules are the core factor to change the level of housing prices in all supply related variables. Glaeser and Gyourko initiated a basic analysis and pointed out that land development restrictions have brought an invisible cost burden to property buyers, namely regulatory tax. The restriction of building density promotes the rise of land transaction value, and these hidden land costs will be fully reflected in the housing sales price, so that the total housing expenditure is much higher than the capital construction expenditure [1]. Based on this framework, urban economics research incorporated land use management and control into the Rosen-Roback spatial general equilibrium model, revealing its far-reaching impact on reducing the elasticity of housing supply and reshaping the spatial population distribution pattern.

However, to understand the affordability of urban housing in China, it is far from enough to directly apply the analysis model of western urban economics. In western countries, land use control is mainly implemented by local governments through zoning and development licensing tools to determine the intensity of land development in the designated area; In contrast, the land use regulation in China's urban environment constitutes a complex system containing multiple institutional elements, including land use right management, quota regulation of new construction land and the monopoly supply mechanism of state-owned land. This institutional framework not only restricts land use, but also provides a core foundation for local governments to coordinate finance, promote development and distribute income [2]. Therefore, the impact of land use regulation on housing affordability in China is by no means a simple urban planning issue, but a political and economic issue involving land rights, financial incentives and urban development models.

Based on China's local institutional background, this paper systematically expounds the internal transmission mechanism of land use regulation affecting housing affordability through literature review. On the basis of this analysis, the paper points out the contradictions existing in China's housing system, and puts forward targeted improvement programs to balance the housing security needs of residents and the national land planning goals.

2. Concepts and Research on Urban Land Use Regulation and Housing Affordability

2.1 Concepts

Urban land use regulation is essentially a mandatory management system. Through comprehensive overall land use planning and urban construction land planning schemes, as well as specific statutory planning tools such as plot ratio and building density, Chinese local governments allocate and restrict urban land development rights. This mechanism belongs to the scope of public management practice, that is, the municipal departments directly or indirectly regulate the nature, use intensity, spatial distribution and development order of various land uses in the region according to the legal planning framework. Its core goal is to correct the externalities of the land market, protect public space and ecosystem, and ensure that urban development conforms to the long-term public interest. At the same time, housing affordability is a multi-dimensional concept, which is used to measure the matching degree between family housing expenditure and socio-economic ability, that is, whether residents can meet basic living needs and obtain housing that meets living standards through reasonable costs. This paper uses a comprehensive perspective to explore the relationship between these two aspects, focusing not only on how the government plans and regulates land use based on social needs, but also on the reality that low - and middle-income groups are forced to reduce other consumer spending due to housing costs. This dual analysis method helps to reveal the fundamental problem: land use regulation may increase housing affordability pressure disproportionately by tightening supply restrictions, especially for low-and middle-income people.

2.2 Research Findings

In their classic research on land planning and housing supply, Glaeser and Gyourko put forward a core argument: throughout American history, stages of economic expansion typically coincide with an increase in local construction output. However, since the 1960s, residential development has faced increasingly severe

obstacles in high demand areas such as California and New York City. They use cost analysis to evaluate whether the housing market provides affordable housing units and specifically examine whether market prices are roughly equal to housing production costs. If this conclusion holds, it indicates that the market is operating effectively in terms of housing supply. This theory constructs a complete logical transmission mechanism, where restrictive land use policies first reduce the elasticity of housing supply, thereby making housing costs much higher than construction production costs, ultimately weakening housing affordability. This clearly indicates that land use control is the core institutional factor that constrains housing supply. Therefore, when market prices significantly exceed the marginal cost of housing, the price difference is not due to reasonable demand growth, but is caused by the "regulatory premium" of land use restrictions on housing supply. This premium directly reflects the negative impact of land use control on housing affordability. Although the analytical framework proposed by Glaeser and Gyourko originated from the zoning system characterized by decentralized land governance in the United States, some of its core logic can still be applied to China after necessary adjustments. Unlike the zoning rules in the United States, China's land governance system combines land use control indicators with land quota allocation mechanisms. Under this institutional background, there are significant structural distortions and rigid housing supply elasticity issues in China's current land management and real estate market: urban spatial planning prioritizes commercial and industrial land development over residential land, resulting in a long-term imbalance between residential supply and household housing demand; The cumulative effect of land regulations further increases the implicit costs of housing construction. In China, land use regulations are further constrained by multiple limiting factors such as ecological red line protection and urban renewal, which further restrict the supply of residential land [3]. In addition, the relevant regulatory policies are too simplistic and fail to fully consider the special needs of cities at different levels, especially the population outflow and housing supply issues faced by small and medium-sized cities. Some policies still adopt high-density development restrictions adopted by large cities, thereby reducing the efficiency of housing supply.

3. Heterogeneity in Land Supply under the Constraints of a Three-Tiered System and the Logic of Political Economy

3.1 The Dual Constraints Characterized by "Use-Based Regulation and Quota Allocation"

There are significant differences between the land use management of Chinese cities and the flexible zoning model adopted by Western countries, presenting a dual constraint feature of "combining use control with construction land quota allocation". The combined effect of these two mechanisms has led to institutional bottlenecks in the housing supply sector: the total land supply control implemented by the central and provincial governments, as well as the land use allocation control implemented by city and county governments, both have a significant impact on urban housing prices and drive them up [4]. On the one hand, strict boundaries have been established for residential land, industrial land, and commercial service land through overall land use planning and urban-rural planning regulations, thereby limiting the space for land use adjustment in response to market changes; Residential land is strictly limited to specific areas, making it difficult to dynamically expand according to population growth or rising housing demand, resulting in a long-term shortage of residential land in urban core areas. On the other hand, the construction land quota is managed through a hierarchical management system from the central to the provincial level. While strictly controlling the total amount of construction land, priority is given to ensuring industrial development and infrastructure project demand, resulting in a sustained low residential land quota. This top-down quota allocation method cannot meet the actual housing market demand, thus forming a self-reinforcing vicious cycle: the growth of housing demand first leads to a shortage of construction land quotas, which in turn imposes strict restrictions on the supply of residential land. The rigidity of land supply directly drives up the premium rate of residential land, and the cost of land is ultimately passed on to homebuyers through housing prices. At the same time, the insufficient supply of resi-

dential land has exacerbated the supply-demand imbalance in the second-hand housing market and rental market, driving up rental levels and overall weakening the purchasing power of low - and middle-income groups - which has become a key factor leading to a decline in housing affordability.

3.2 Land Monopoly in Supply and Dependence on Local Finances

As the main suppliers in the urban primary land market, local governments' land supply policies are closely tied to their land-based fiscal revenue models. Their supply strategies aimed at maximizing land revenues tend to exacerbate rising housing costs. While local governments' monopoly over the primary land market may boost short-term land finance development and intensify fiscal dependence on land sales, these effects are constrained by economic growth rates in the long term [5]. By controlling residential land supply, governments create a sense of scarcity in the housing market, which reduces available land availability and drives up land prices. The interplay between land and housing prices enables governments to increase land revenues through supply regulation. Rising land costs directly elevate average housing prices, shifting financial burdens onto consumers. Moreover, high land prices fuel increases in property values and rents, further squeezing housing affordability for low-and middle-income groups and worsening structural imbalances in the housing market.

3.3 Growth Competition and Urban Spatial Preferences

Driven by the incentive mechanism of local "growth competition", the government has further expanded the scale of industrial land while restricting the allocation of residential land, resulting in an imbalance in land supply structure. To achieve GDP growth and attract foreign investment, local governments have significantly increased the supply of industrial land to promote economic development. In sharp contrast, residential land use faces stricter restrictions: compared to industrial land, residential land contributes less to local GDP growth, so government departments often tighten restrictions on the supply of residential land [6].

The expansion of industrial land has compressed

residential space, resulting in insufficient residential land area, inadequate surrounding infrastructure, and poor transportation convenience. At the same time, the scarcity of residential land in the core urban area, coupled with the continuous rise in housing prices and the continuous increase in commuting and living costs, further exacerbates the economic burden on residents. High income groups can afford expensive housing in the city center and enjoy high-end supporting facilities and resources; In contrast, low - and middle-income groups are often forced to relocate to the suburbs, facing multiple challenges such as housing pressure, high commuting costs, and time constraints, highlighting the obvious class differentiation in housing affordability issues. In addition, the expansion of industrial land will exacerbate environmental pollution, further damage the living standards of low - and middle-income groups, and widen the gap in housing affordability.

4. The Multidimensional Mechanisms by Which Land Use Interventions Affect Housing Affordability

Supply-side distortions serve as the foundational mechanism, spatial mismatches represent an extension of this mechanism in the spatial dimension, and social exclusion effects constitute the ultimate distributional consequence.

4.1 Supply Side Distortions: Structural Mismatches and Rising Land Prices

The supply side distortion under land use control is the core transmission path that drives up housing costs and weakens housing affordability. There is an imbalance in the allocation of production land and residential land, and significant regional differences are observed. The contradiction between supply and demand of residential land is more prominent, while the factor mismatch of production land is gradually improved [7]. First, under the incentive of "land finance", local governments generally have a structural bias of preferring industrial land and reducing residential land. The supply of residential land has been mismatched with the growth of population and housing demand for a long

time, forming a rigid cycle of "insufficient land supply - rising land prices - rising housing prices". Secondly, the proportion imbalance within the land structure exacerbated the cost pressure. On the one hand, industrial land is mainly sold at a low price, while residential land is sold through "bidding, auction and listing". The price scissors gap between the two kinds of land continues to expand, raising the development cost of commercial housing. Finally, rigid regulatory measures such as floor area ratio regulation and land use property adjustment restrictions will directly reduce the elasticity of housing supply. Developers tend to develop high-end residential products, resulting in insufficient supply of medium and low-cost, small and medium-sized homes, which further exacerbates the structural contradiction between supply and demand in the housing market.

4.2 Spatial Mismatch -- Deviation between Cross Regional Distribution of Indicators and Population Flow

The cross regional distribution of construction land indicators and the spatial mismatch of the actual flow direction of population are the key driving factors of housing affordability differentiation. China's long-term allocation of construction land indicators has shown the characteristics of "inclining to the central and western regions and small and medium-sized cities", which deviates from the trend of population gathering in the eastern big cities, and directly leads to a serious shortage of residential land supply for the population flowing into the core cities. However, when the population flows out of the core urban area, there will be problems of land idleness and inefficient utilization. This "man land mismatch" pattern has produced a double squeeze effect. In cities with net population inflow, land supply constraints push up land prices and house prices, and the rapid rise in housing costs weakens the real wage level of the labor force. At the same time, it will also aggravate the separation of work and housing, and increase commuting costs. In cities with population outflow, the oversupply of construction land failed to form an effective housing demand, but gave birth to real estate inventory and inefficient development, resulting in a waste of resources. The cross regional distribution mechanism of construction land indicators has been characterized by "reverse

allocation" for a long time. Indicators tend to flow to the central and western regions with low economic efficiency and population outflow, while the eastern coastal regions with continuous population inflow and strong economic vitality face the problem of lack of indicators [8]. This mismatch directly leads to the huge difference in marginal output of land between different regions, which makes the housing supply in high productivity areas unable to match the demand of population growth, and pushes up the local residential cost. The imperfect cross regional transaction mechanism of construction land indicators further solidifies this spatial mismatch, which makes the core cities unable to supplement the supply of residential land through market-oriented means, and ultimately leads to the continuous expansion of regional differences in housing affordability.

4.3 Social Exclusion Effect and New Citizens' Housing Dilemma

Under the influence of land use regulation, the high housing cost has a significant social exclusion effect on the floating population, young talents and other new citizen groups. Faced with low price elasticity of demand, local governments will choose a higher residential land price corresponding to a lower residential land supply to maximize profits. On the one hand, the insufficient supply of residential land in core cities has pushed up the housing price and rent, which directly exceeds the affordability of the new citizen group. As a result, new citizens can only choose to live in informal living spaces such as villages in the city, suburban areas or sheds, forming residential isolation and spatial marginalization. On the other hand, the restriction of land use regulation on the land for affordable housing has led to a serious shortage of low-cost housing for new citizens, while the rent level of market-oriented rental housing continues to rise, further squeezing the disposable income of new citizens and inhibiting their consumption ability and willingness to integrate into the city. In the long run, the housing cost pressure not only hinders the integration of new citizens into the city life, but also intensifies the differentiation of residential space among different groups, weakens the inclusiveness of the city, and has a negative impact on labor agglomeration and long-term urban development.

5. Discussion on the Limitations of Existing Empirical Research

5.1 The Insufficient Granularity of Core Variable Measurement

At present, the empirical research on urban land use regulation and housing affordability generally has the problems of core variable measurement and insufficient granularity, which will directly restrict the accuracy of the research conclusion and the reference value of the landing policy.

At the level of regulation intensity measurement, most of the existing literatures rely on macro scale indicators such as provinces and cities, as well as aggregate data such as the number of commonly used construction land supply and the proportion of urban residential land supply, which can only represent the characteristics of the overall regional land supply scale, and it is difficult to capture the actual constraints of the regional micro level regulation rules. At the same time, most of the existing studies are established from a single perspective of urban residents based on population data, which is difficult to reveal the dynamic and complex spatial reconstruction within and between cities [9]. For example, many refined regulatory tools directly shape housing supply elasticity. Typical examples include floor area ratio caps, land use classification rules, and restrictions on land parcel transfers. Existing research thus cannot clearly disentangle two distinct drivers of housing price growth: insufficient total land supply and rigid planning controls, and fails to identify their separate marginal impacts. At the level of housing affordability measurement, scholars still generally use regional average macro indicators such as housing price income ratio and rental income ratio. These indicators are vulnerable to the interference of regional average income structure and housing unit level differences, which cannot show the difference of residents' real living burden under different income classes and different urban locations, and it is also difficult to distinguish the differential impact of land control system on low-income groups and new migrant citizens. The deviation of macro measurement will also make it difficult for existing studies to clarify the impact of regulatory policies on the micro level of housing

costs, and it is difficult to provide sufficient empirical support for differentiated and refined land management and control optimization.

5.2 The Dilemma of Causal Inference with Endogenous Treatment

There is a two-way correlation between land use regulation and housing prices. The endogenous bias caused by the correlation has become the core shackle of empirical causal identification in this field, which directly determines the reliability of causal inference conclusions. The land supply decisions of local governments are not entirely exogenous, and will be dynamically adjusted with the trend of local house prices. In the upward stage of housing prices, local governments may not only moderately relax the supply of homestead to balance housing prices, but also actively tighten the supply of homestead and raise the land price by relying on land financial objectives. This two-way relationship is very likely to cause systematic estimation errors in ordinary OLS regression [10]. At the same time, the problem of missing variable deviation is also prominent. Hidden factors such as regional industrial layout, public resource allocation and population agglomeration trend will simultaneously affect local land control decisions, local housing demand and housing price trends. If such variable interference is not fully removed, it will easily overestimate or underestimate the real effect of land regulation on housing affordability.

Although the instrumental variable method is widely used, it is still extremely difficult to find local historical or geographical tools that can effectively predict the intensity of regulation and strictly exogenous housing demand, and its exclusive constraints are often questioned. Existing studies often use geographic and historical instrumental variables such as topography and geomorphology, planning control remains in historical periods, and some historical control tools are vulnerable to the inertia interference of long-term urban development, and the exogenous hypothesis is often questioned. However, the provincial aggregate scale control tools generally have weak correlation with the core explanatory variables. At the same time, regression discontinuity design, policy evaluation methods such as breakpoint regression will be constrained by the gradual implementation of land control policies, cross regional policy spill-

over effects, multiple policy superimposed interference and other practical constraints, and it is difficult to fully realize the precise stripping of the net effect of control policies. To sum up, the proper disposal of endogenous bias is still the key difficulty for empirical analysis in this field.

6. Conclusion

Based on the above theoretical review and analysis of research limitations, this paper systematically summarizes the theoretical context and research progress of the core literature, and clarifies the multiple mechanisms, practical difficulties and research gaps of urban land use regulation affecting housing affordability. Under the background of the inflection point of population scale and the coexistence of expanding cities and shrinking cities, the current land use control needs to solve the three core contradictions of the imbalance of land use structure, the mismatch of human and land space and the rigid control constraints, so as to reverse the bias of focusing on industry and neglecting housing, and the deviation between population flow and the cross regional distribution of construction land indicators. At the same time, policymakers should face up to the shortcomings of the existing regulation rules, the lack of refined control policies, and the significant differentiation of the housing burden of different income groups. On this basis, people should weaken the artificial tightening mechanism of residential land under the land financial incentive policy, weaken the residential exclusion effect caused by land regulation, and narrow the differences in the affordability of housing for different income groups and new and old citizens. In the future, based on the characteristics of China's actual regulation system, it is necessary to clarify the transmission logic of land regulation affecting housing costs, optimize the control means at this stage, take into account land space control and residential housing security, and provide optimization ideas for solving housing affordability and Coordinating Land Space Governance and residential security. Combined with the triple mechanisms of supply distortion, spatial mismatch and social exclusion, differentiated policy tools such as quota trading, flexible floor area ratio regulation and independent land allocation for affordable housing can be adopted to deliver governance goals. Meanwhile, the monitoring and assessment

system linking land supply and housing costs shall be refined to foster long-term coordination between land supervision and housing security.

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