Urban land marketization in China: Central policy, local initiative, and market mechanism

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A B S T R A C T

Market-oriented reforms in transitional economies have often been considered top-down institutional arrangements dominated by the state. This study simultaneously views urban land marketization in China as a bottom-up process, which is consisted of two important elements; namely, a pivotal and active role played by municipal governments as well as a variety of market mechanisms used by municipal governments to maximize their interests. A systematic analysis of prefecture-level land supply data during the period 1999–2010 reveals that urban land supply marketization level in China has reached approximately 35%. The differences of the land marketization levels between well-developed coastal regions and underdeveloped interiors have not emerged until recently. Multivariate analyses using a panel data model show the significant effects of the policies formulated by the central state to promote urban land marketization. Land supply strategies adopted by municipal governments are more motivated by their interests to maximize long-term profits in economic growth and tax base expansion and less motivated by the prevailing notion of immediate land finance. Economic growth and the accompanying industrial upgrading are significantly favorable for urban land marketization, which is expected to improve naturally with regional development. Local governments have learned well to make the best of market mechanisms to achieve their own goals. Thus, effective central policies should fully consider the interests of local governments and the law of the market.

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1. Introduction

In the recent history of global development, China’s remarkable achievements in urban and economic development have represented a major milestone. Within a period of three decades, China has rapidly emerged as the second largest economy measured by gross domestic product (GDP), the largest “world factory” with an unparalleled scale of industrial output, and the first-ranked exporter in the world (NBSC, 2013). Meanwhile, Chinese cities and towns have provided jobs and settlements for approximately 30% of new urban residents of the world in the first decade of the new century (United Nations, 2012). Correspondingly, the urban built-up area has expanded dramatically from 22,493.9 km² to 40,058.0 km², or by 78.5%, over the decade (NBSC, 2011). In such a transitional economy, interactive roles played by emerging market forces and powerful central and local states are essential for the interpretation of the changing economy and society.

These great transformations observed in Chinese cities have been extensively attributed to the market-oriented reforms launched in the late 1970s (Harvey, 2005; He and Wu, 2009; Liew, 2005). The neoliberal reforms characterized by the increasing role played by market forces in resource allocation and economic activities have stimulated the vitality of urban and rural economies, accelerated the movement of capital and population, facilitated the efficient utilization of economic resources, and generated continuous economic prosperity and urban development. Although market reform has often been treated as an exogenous factor, contextual embeddedness is also emphasized by neoliberal scholars for understanding its formation logic and operation mode (Brenner and Theodore, 2002). Moreover, although the state has been inferred by the neoliberal framework to retreat from economic regulation, its effective interaction with the market may be important for the legitimation and operation of neoliberal experiments in transitional economies. Systematic investigation on these issues remains
scarcity in existing literature regarding ongoing market-oriented reforms in China (He and Wu, 2009).

In contrast to the emphasis placed by neoliberal scholars on the role played by emerging market forces in regional development, several other political economists have interpreted the profound economic and urban transformations in China because of the developmental state (Liu et al. 2008; Qi, 1995). Under the cadre evaluation system of this centralized bureaucratic state where economic growth and fiscal revenue are two essential criteria for determining the political promotion of government officials, the major work of local governments at every level has turned out to be attracting foreign and domestic investment with all resources and preferential policies to accelerate urban economic growth and local fiscal expansion (Tao et al., 2010; L. Wang, 2014). Moreover, growth competition among developmental local governments has been enhanced significantly by the restructuring of the central–local relation characterized by fiscal recentralization and duty decentralization since the mid-1990s (Cheung, 2009; Liu et al., 2008; Zhang, 2006). Although regional development competition has led to inefficient utilization of economic resources, unsound industrial structure, environmental disruption, and social instability, it has enabled and maintained the superficial economic prosperity in post-reform China (Montinola et al., 1995). Despite the extensive literature on developmental state, relatively fewer studies have discussed its local operation. First, the changing central–local relation in China has been viewed as a unique reform process and extensively discussed from a theoretical and institutional perspective (Qi, 1992; Ran, 2013; C. Wang, 2014; Yang, 1994; Zheng, 2006). Yet the practice of this changing relation, particularly at the local level, has not been fully examined by previous studies. Second, although the interactions between governments and the emerging market have been increasingly understood, the integrated analysis of central–local relation and state–market interaction has rarely been situated into local–specific political economic contexts (Kostka and Hobbs, 2012; Li and Zhou, 2005; Nee, 1992; Zhu, 1999). Last, spatial heterogeneities in regard to varied market conditions, different reactions of local government and diverse outcomes of central policies, have not been sufficiently examined at the local level. In this sense, further investigations on localized outcomes of mutual interactions among the central state, local governments, and market forces have the potential to provide new insights for the role of developmental state in China’s ongoing practice of reform and development.

In the voluminous studies on neoliberal reforms and developmental states, the emerging market has been commonly considered as a given institutional context which changes with the holistic reform pace. The causes and processes of marketization per se, as well as the effects of developmental states on marketization, have rarely been discussed in existing literature. From this perspective, investigating the formation and practice of marketization would be conducive to establishing a more comprehensive understanding of the functioning mode of the developmental state and the overall process of reform and development in Chinese cities.

The important yet unresolved issues identified above, in particular the dynamics of marketization and the role of developmental state in this process, can be effectively interrogated through the lens of ongoing development of the urban land market in China. Land system has played a crucial role in forming a neoliberal reform scheme because of its pivotal position in an economic system. Thus, the establishment and development of the urban land market are important perspectives for investigating and evaluating the reform practice of a transitional economy (Swyngedouw et al., 2002; Wolford, 2007; F.L. Wu, 2010). Moreover, land has been such a profitable resource that the interests of states at multiple levels and various market forces intertwined with each other in land development, especially in rapidly growing economies where the scarcity of land resource emerges and the price takes off in a short period (Borras, 2003; Hui et al., 2013; Liu and Lin, 2014). Therefore, the interactions among these actors could be observed and scrutinized systematically from the perspective of urban land marketization. Finally, urban land marketization in China is an ongoing process in which the interests and behaviors of all relevant actors could be closely examined. Although the urban land market in China has developed continuously in terms of the volume of land conveyance, the income local governments gained, and its contribution to local finance since its first launch in the late 1980s, its significant influence in urban and regional development has not been the case until the late 1990s. Since then, the capitalization of urban land has become not only the main source of local public finance but also the primary engine of economic growth and urban development in modern China (Cao et al., 2008; Lichtenberg and Ding, 2009; Lin, 2007; Lin and Yi, 2011; Liu and Lin, 2014; Wu, 2003; Xu et al., 2009; Zhou, 2010). This phenomenon presents a rare opportunity for researchers to understand land marketization in a broader political economic context as well.

The development of the urban land market in China has already been extensively documented. Most of the existing literature has been focused on reviewing the reform course of urban land system, estimating fiscal revenue that municipal governments gain from the land market, and evaluating the effects of the land-centered development model on economic growth, urban transformation, social stability, and ecological security (Ding, 2003; Lin and Ho, 2005; Liu et al., 2005, 2008; Zhu, 2004). Relatively less has been written on the nature and dynamics of urban land marketization per se. In most previous studies, the state-market relation has been arbitrarily treated as a zero-sum game without probing into practical interactions between the emerging urban land market and reforming land authorities. Moreover, since top-down land reform measures are often viewed as a given institutional context for local land development, researchers rarely attempted to understand de facto diversified local implementations of central land policies. In other words, few has used systematic and reliable data to examine local heterogeneities nested in the operation of central policies which commonly aim at promoting urban land marketization. In addition, although many scholars have acknowledged the central role played by land development in facilitating urban economic growth and fiscal expansion, little has been documented on the variegated strategies adopted by different local governments which intend to maximize their benefits associated with urban land marketization.

To fill these gaps, the central question for theoretical and empirical inquiry in this research essentially concerns the way in which urban land marketization is initiated in China in the broad context of state power reshuffling and state–market relation reconstruction. Is urban land marketization a top-down institutional arrangement dominated by the central state or a bottom-up process promoted mainly by the local authorities? Have the central land policies aiming at improving land marketization been implemented effectively and efficiently by local governments? What are the exact roles played by local states in this process? How does urban land marketization vary through time and across space? How has the uneven landscape of land marketization been shaped by the central–local power reshuffling? What are the relationships, if any, between the extent of land marketization and the level and structure of economic development, land scarcity, and degree of openness? The aforementioned issues have significant implications for not only a better understanding of the nature and dynamics of urban land development in China but also the investigation of the formation and development of markets in developing countries undergoing neoliberal reforms.

In this study, we attempt to examine the ongoing practice of market reform in Chinese cities by examining the pattern and
dynamics of the uneven urban land marketization emerging in a broader political economic context. The purpose is threefold, namely, (1) to investigate the roles played by the restructuring of central–local power relations and the diversified logics of industrial, residential, and commercial land demand in the development of the urban land market in China; (2) to identify the pattern and processes of urban land marketization; and (3) to evaluate the relationship between land marketization and geographical, economic, and political factors among Chinese cities of various geographic conditions.

The remainder of the paper is organized into four parts. In the subsequent section, we develop a conceptual framework to understand the practice of urban land marketization as a strategy adopted by local governments to maximize their interests through urban land supply. Then, we clarify the definitional and methodological issues concerning this research. The empirical part of the study examines the temporal and spatial patterns of land marketization in Chinese cities and identifies their correlation with political, economic, and geographical factors. The important findings of the research are summarized and discussed at the end.

2. Understanding land marketization in Chinese cities: state reshuffling, government capacity, and market mechanism

In this section, we attempt to understand urban land marketization in China by situating it into a broader political economic context with particular emphasis on the evolving central–local relation and state–market interaction over the past two decades. We argue that China’s increasing urban land marketization over the past decade is not only a top-down institutional arrangement, but also a bottom-up practice to a significant extent. The “bottom-up” urban land marketization in China has a double meaning. The first meaning is the dominant role played by local governments who have the incentive and capacity to facilitate or impede land marketization regardless of the presence or absence of central policies. The second meaning is the pivotal role of market mechanisms in local government decision making on whether to facilitate or impede urban land marketization to maximize their own interests.

The dramatic expansion of urban land in China has been conducted at the expense of continuous shrinkage of agricultural and unused land, posing increasing threats to food security, ecological protection, and social stability (Hsing, 2010; Lin and Ho, 2003; Liu et al., 2005). In order to balance development and protection, the central state has developed a range of laws and regulations to improve the efficiency of urban land use, of which enhancing urban land supply marketization has occupied a prominent position. In particular, the Ministry of Land and Resources introduced two regulations to monitor and facilitate the development of the urban land market, namely, The Regulation on Transferring the Use Right of State-Owned Land by Tender, Auction, and Listing (zhaojiao paijia guangong guoyou tudi shiyong quan guiding) released in 2002 and The Regulation on Transferring the Use Right of State-Owned Construction Land by Tender, Auction, and Listing (zhaojiao paijia guangong chuangzuo guoyou jianshe yongdi shiyong quan guiding) released in 2007 (Liu and Lin, 2014). The Regulation on Transferring the Use Right of State-Owned Land by Tender, Auction, and Listing rendered compulsory the conveyance of land use rights for commercial, tourism, recreation, commodity housing (hereafter shortened to “residential”1), and other types of profit-making activities to be undertaken via market tracks of public tender, auction, or listing2. The latter one extended the scope of market transaction of land use rights into industrial land.

Land marketization in Chinese cities seems to be a top-down process imposed by the central state. However, land policies introduced by the central state aiming at promoting the marketization of urban land transfer may not be effectively implemented by local governments because their interest in urban land development lies neither in the efficient utilization of land resources nor in urban land supply marketization, but rather in the expansion of local finance coupled with the growth of urban economy. The unquenchable thirst of municipal governments for fiscal revenue has been rooted in the restructuring of state power since the mid–1990s, when the tax-sharing reform was first launched (Wong, 2000). Fiscal decentralization on the revenue side and decentralization on the expenditure side as arranged by the new tax system has profoundly reshaped the central–local fiscal relation. The inevitable consequence has been the increasing fiscal pressure upon local governments who have accounted for over 70% of total public expenditure, but collected less than 50% of total budgetary revenue (Tao et al., 2010). Although part of the taxes collected by the central state has been transferred back to local governments, its distribution followed a top-down approach; thus, the amount allocated to counties and cities was limited and unfixed (L. Wang, 2014; Wong, 2000). Moreover, the budgetary revenue of municipalities collected by themselves or transferred from superior governments has been monitored more strictly than before (Zhou, 2010). Under this circumstance, municipal governments have sufficient and strong incentives to prioritize collecting budgetary and extra-budgetary revenues by mobilizing all resources in hand and using every means available. Thus, land commodification has emerged as an important source of local revenue (He et al., 2014; Liu and Lin, 2014; Xu et al., 2009). In this sense, the interest of municipal governments has diverged from that of the central state and their attitude toward urban land marketization will also be inconsistent with that of the central state.

Given the critical role of land finance in urban and regional development in China, considerable scholarly attention has been focused on the increasing practice of land commodification and its substantial effects beyond the scope of local public finance on many other realms, such as the attraction of foreign and domestic investments, promotion of infrastructure construction, and stimulation of urban economic growth in the period of global financial downturn (Lichtenberg and Ding, 2009; Liu and Lin, 2014; Peterson, 2009; Wu, 2003; W.P. Wu, 2010; Xu et al., 2009; Zhu, 2004). However, why municipal governments have tended to pin their hope of revenue generation on urban land development rather than anything else, how they have been empowered to manipulate the urban land market in the reform era, and what strategies have been adopted to maximize their financial goals in this process are questions that remain controversial and vague. The answers to these questions are essential to deepen our understanding of China’s urbanization and land development in general and urban land supply marketization in particular.

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1 Non-profitable residential land development also exists, such as land used for economical housing, low-rent housing, dismantling and settling building, and other types of affordable housing. Hereafter, residential land in this paper only refers to

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2 This regulation was enhanced in August 2004 by the Circular on Continuing Law Enforcement and Supervision Work on Transferring the Use Right of Profit-seeking Land by Tender, Auction, and Listing (guanyu jiaozhuan jingying xing tudi shiyong quan zhaojiao paijia shiyong quan guiding) released in 2002 rather than after the introduction of the enhanced policy in 2004. We will further demonstrate the empirical evidence of this finding in later sections of the paper.
The dominant role of land commodification in local public finance and regional development has been a necessary and rational choice of municipalities in contemporary China undergoing market-oriented reforms and rapid urbanization and industrialization. In the first place, with the ongoing practice of reform, most economic resources, such as capital and labor forces, have escaped gradually from the direct control of the state and have been allocated dominantly by the price-based market mechanism (Huang, 2008; Lin et al., 1998). By contrast, reform in the land system has been practiced in later stages and the ownership of urban and rural lands has not been altered at all. Thus, land has become the only key resource that remained at the disposal of the state, in practice the developmental local states. Not surprisingly, urban land development has become a critical means used by municipal governments to generate fiscal revenue and promote economic growth. Moreover, in rapidly industrializing and urbanizing China, the price of urban land has accelerated dramatically because of the increasing demand for and limited supply of urban land resources. As such, land-related revenue has become a substantial supplement to strained local finance, which cannot be substituted by any other means. Available statistics have indicated that the conveyance fee collected from urban land supply increased from CNY 51.4 billion in 1999 to CNY 2.69 trillion in 2012, and its ratio to local budget revenue has increased dramatically from 9.2% to 44.0% during the same period of time (MLRC, 2000, 2013; NBSC, 2013). Finally, all of the revenues derived from land conveyance are allocated to the extra-budgets of local governments, indicating that municipal governments have complete control over this fund. The local governments can use the extra-budgetary revenues to enhance urban infrastructure, to attract investment, and to improve the welfare of officials or in any manner beyond the close supervision of the central state (Cao et al., 2008; Zhou, 2010). Although land conveyance fee has been classified as a type of fund budget in recent years, it has remained to be fully controlled by local governments.

The capacity of local governments to pursue maximized revenue from urban land development has been guaranteed by the central–local relation and state–market relation reshaped by gradual reforms. Municipal governments have played three different roles in the land system in China. The first role of municipal governments is as de facto owner of urban land. The Constitution and Land Management Law of China explicitly stipulate that urban land is owned exclusively by the state and that the state has the right to expropriate rural land into urban use by which land ownership is transferred from rural collectives to the state. Endorsed by these clauses, municipal governments as the representative of the “state” obtain full rights to lawfully occupy a flexible amount of urban land and make a profit from land development.

The second role of municipal governments is as monopoly supplier in the urban land market. Peasants, as the original owner of urban land converted from rural areas, are completely excluded from the urban land market. Therefore, the municipal government has become the sole supplier in the land market of a city (Cao et al., 2008; Ding, 2007; Lin and Ho, 2005). All developers and enterprises in need of urban land have no choice but to purchase land use rights from the city government. The monopoly power of municipal governments also exists in the rural–urban transfer process of land resources in the form of exclusive land expropriator. Against these institutional backdrops, municipal governments are able to maximize their financial interest from land development by expropriating rural land with a low level of compensation and leasing it to urban users at an extremely high price on one hand and optionally adjusting the volume of land transfer to control the costs and benefits on the other (Hui et al., 2013; Sargeson, 2013; Zou and Oskam, 2007).

The third role of municipal government is as the local land manager who is responsible for the implementation of central land policies and the formulation of local land policies. The local land manager can implement land management policies developed by the central state in selective ways, as follows: comply in appearance, but ignore in practice; carry out a part, but lay aside the other part; and pursue several policies excessively, but pursue other policies with reservations (Chung, 2000; O’Brien and Li, 1999; Ran, 2013). In addition, the local land manager is also entitled to develop local land policies that are often integrated with urban and industrial planning and are in favor of revenue expansion and urbanization. As a complex of these three roles is created jointly by the decentralized land management system and the non-privatized land ownership, municipal governments have acquired the powerful capacity to pursue considerable revenue from land development.

Empowered with full rights to govern urban land development, Chinese municipal governments have the chance to develop an optimal strategy to achieve their dual goals of fiscal expansion and economic development. From the fiscal angle, urban land supply marketization seems to be a good choice because competitive bidding usually increase the average price of land leased in the market and favor the total land-related revenue that local governments will earn from land development. In this sense, the central policies aiming at promoting urban land supply marketization would be effectively implemented by local governments for their own financial interest. However, the reality is quite the opposite. Despite the increasing share of urban land supplied via tender or auction since the early 2000s under the pressure posed by the central government, 61,551 parcels of urban land remained leased by closed-door negotiation in 2010, accounting for 43.4% of the national total number of land sites supplied to the market in the year (MLRC, 2011). We need to consider the motivations of municipal governments to develop urban land to understand this seemingly illogical phenomenon. In the political and economic contexts of modern China, local governments have two major tasks, namely, pursuing more revenue to balance local public finance and promoting urban and economic development. The fiscal objective can be achieved within or outside the budget. Although urban land supply marketization is likely to improve the immediate land finance that municipal governments can obtain from land commodification in the current

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3 It should be noted that tax income from residential and commercial development may also constitute a large amount of local governments’ fiscal income. Since the accurate estimation of land-related revenue is not the purpose of this paper, we do not extensively discuss land-related taxes for two main reasons. First, the land-related tax income is included in the general budget which is pooled with other taxes and closely supervised by superior governments. It is not fully at local governments’ disposal and does not constitute an adequate motivation for local governments’ pursuit for land revenue. Second, most types of land-related taxes such as urban land use tax, land value-added tax, deed tax and property tax are collected not only from the process of land expropriation and conveyance but also from long-term land holding, land and house transactions and so forth. It is not feasible to acquire the accurate amount of such taxes that is directly gained from the process of land development. Hence, we use land conveyance fee to represent land finance without repeatedly emphasize its accurate composition in the remaining sections of the paper. One should also note that land conveyance fee is commonly adopted to indicate China’s land finance in the existing literature (see Lin and Yi, 2011; Liu and Lin, 2014; Chen and Hu, 2015; Pan et al., 2015; Wu et al., 2015). However, this does not suggest that land-related taxes are not accounted for local governments in choosing different strategies of land conveyance.

4 According to Regulations on the Income and Expenses of State-owned Land Conveyance (guoyou tudi shiyongguan chuangur shouchu guanli banfa) formulated jointly by the Ministry of Finance, the Ministry of Land and Resources, and People’s Bank of China, land revenue has been managed as a type of fund budget which is not as strictly managed as general budgets. More importantly, land revenue is classified as a type of local fund which is budgeted, managed, and supervised by city governments without the intervention of superior governments (Article 29). In this sense, land revenue to a great extent remains at the local government’s disposal despite the implementation of this regulation. For this reason, many studies in recent years still tend to treat it as a type of extra-budgetary revenue (Chen and Hu, 2015; Pan et al., 2015; Wu et al., 2015).
period, it may not only introduce difficulties for local governments to promote economic growth and urban development by leasing low-priced land but also undermine both land-related and budgetary revenue derived from urban and economic prosperity in the future (Liu and Lin, 2014). Therefore, local governments have to maintain the balance between short-term land finance and long-term urban prosperity (Liu et al., 2008; Tao et al., 2010; Xu et al., 2009).

From the perspective of fiscal expansion and economic development, municipal governments have perspicaciously and rationally utilized the market mechanisms to achieve their own political and financial goals. Land supply strategies adopted by municipal governments can be effective only if they comply well with the market logics of urban land demand in this marketizing economy. In reality, cities in various geographical locations and developmental stages often have different industrial and investment structures, leading to remarkable spatial unevenness in the volume and structure of land demand. Thus, the optimal land supply strategy is not the same for each city. This diversity makes the localized implementation of a unified land policy vary significant from one place to another. Therefore, although land marketization seems to be a top-down policy, its spatiotemporal landscape is actually shaped mainly through a bottom-up mechanism in which local governments and market demand play more important roles than the central state.

This argument will become clearer when we consider the differentiated nature and demand logics of industrial and commercial/residential lands in Chinese cities (Liu and Lin, 2014; Tao et al., 2010). Given that commercial and residential real estates are primarily sold or rented to companies and residents living within the city where they are developed, the demand and supply of commercial and residential land in different cities are clearly separated from each other. Assuming this type of urban land market as a perfect monopolistic model is reasonable because each city has its own requirements for commercial and residential activities. Even if superfluous commercial land were placed on the market and excessive commercial enterprises were attracted by the low-priced land resources, the commercial activities would not increase with the spatial expansion of commercial land, but be restricted by the localized demand (Liu and Cao, 2011). Thus, the municipal government would not obtain additional taxes in this process, despite the cost they had paid in land conveyance. Concerning the de facto absence of property tax in current China, leasing out residential land would not generate a stable stream of local tax revenues as we have seen in many developed countries where property tax is the most important tax base for local governments (Cao et al., 2008). Furthermore, urban land that is suitable for commercial activities usually concentrates in the city center where the land resource is scarce. Public bidding becomes the best means to allocate limited land resources in this place. For these reasons, as the exclusive supplier in this monopolistic market with a limited amount of commodity, local governments have all the reasons to positively and actively implement the central policy aiming to increase commercial and residential land supply marketization. City governments would be willing to use market mechanisms to allocate commercial and residential land even without the central policy because low-priced negotiation used to supply this type of land would only undermine the current land finance, but not generate any additional fiscal revenue or economic prosperity at all in the long term.

However, industrial land has followed a quite different logic, which makes the nonmarket mechanism a popular and reasonable approach to lease out land to manufacturing factories. Four features of the industrial land market may be responsible for this seemingly irrational strategy adopted by most municipal governments. First, the demand and supply of industrial land are generally a competitive national unified market, although the municipal or county/district government is the single legitimate supplier of industrial land in its jurisdiction (Liu and Lin, 2014). This phenomenon is attributed to the locational choice law of industrial factories, which is distinct from that of commercial enterprises. Given that a large proportion of their products are sold in the market outside the city where they are produced, few industrial enterprises have only one city to select when they are seeking for the optimal location. Second, manufacturing enterprises can provide a sustainable stream of tax revenue. Although 75% of value-added tax generated by manufacturing enterprises should be delivered to the central state, part of it will be returned to the cities; the delivered tax is also an important political achievement of local governments (Cao et al., 2008; L. Wang, 2014). Third, and most importantly, the considerable spillover effect of manufacturing industries on the development of service sectors and the agglomeration of urban population has made industrial investment the most popular resource that all cities compete for. The consumption demand of factory workers and managers for housing and various services is the most important source of the prosperity of the property, commodity, and service markets (Lin, 2007; Liu et al., 2008; Tao et al., 2010). Thus, the attraction of manufacturing investment by leasing out industrial land through the one-on-one negotiation approach has become a reasonable and optimal strategy for municipal governments because the long-term profit in revenue generation and economic development will definitely exceed the cost they pay by supplying lower-priced industrial land. Finally, unlike commercial and housing investments, manufacturing factories have neither location specificity nor the ability to afford the high price of land in the city center, indicating that they are not opposed to being placed in suburb areas as long as the land and infrastructure have been well prepared. Given the low output level of agricultural land and low population density in this area, the compensation paid to local residents is much lower than that in the city center, which makes it possible for local governments to lease out affordable industrial land through nonmarket mechanisms with low prices. Therefore, municipal governments have no incentive to promote industrial land supply marketization.

In brief, the degree of land marketization in a city represents the land supply strategy adopted by the municipal government to achieve its political and economic objectives formulated by the restructuring of central–local relation in contemporary China. As the de facto owner of urban land, the monopolistic supplier in the land market, the implementer of central land policies, and the manager of local land resources, municipal governments have played a pivotal role in land development in China and acquired an extraordinary capacity to control over and to benefit from the urban land market. The municipal governments have no incentive to resist or evade the emerging land market completely, but are willing to embrace and use it to serve their own purpose. Therefore, we argue that urban land marketization in China is not only a top-down institutional arrangement formed by the central state but also a bottom-up practice adopted by local governments to maximize their political and financial interests.

3. Definitional and methodological issues

By law, collectively owned rural land must be expropriated by the state and converted into state-owned urban land before entering the primary market (yiji shichang) of urban land in which land users acquire land use rights from municipal governments (Cao et al., 2008; Ding, 2007; Lin and Ho, 2005). Subsequently, urban land is permitted to be freely transferred between land users, which is
called the secondary land market (erji shichang) in Chinese cities.\(^5\) Considering the fact that land use rights are transferred through perfect market mechanisms in the secondary market, the theoretical and empirical analyses of this study will be focused only on the uneven development of the primary land market in which urban land use rights are assigned in two ways, namely, state allocation (huabo) and conveyance (churang).\(^3\)

The conveyance of urban land use rights can be conducted via closed-door negotiation between government officials and land users (xieyi), public tendering (zhaobiao), auctioning (paimai), or listing of quotation (guapai). Different means of land supply are characterized by different degrees of transparency and competitiveness. The degree of land marketization can be measured by a weighted average approach (Liu and Lin, 2014), expressed as follows:

\[
LM_t = \sum_{k} P_{tik} W_k \sum_i P_{tik}
\]

where \(LM_t\) is the urban land supply marketization level in city \(i\) and year \(t\), \(k\) is the five types of land transfer in the primary market, \(P\) is the number of parcels transferred in a city,\(^7\) and \(W\) is the marketization level of each type of land supply, which is defined as the average price of urban land conveyed in a particular manner over the study period in comparison with the highest price level among the five types.

The calculation based on land prices available during the period 2003–2008 shows that the highest level of the average price was attained during auction, of which the marketization level is, thus, defined as 1. The average price of land conveyance through tender was similar to that of auction, and its marketization level is also defined as 1. The average prices of land conveyance through listing and negotiation are equivalent to 50% and 15% of that of auction, and their marketization levels are defined as 0.50 and 0.15, respectively. Although state allocation may be transacted at an “allocation price” consisting of three main components, namely, the expropriation cost of the land, various stipulated land fees, and a government–set allocation fee, it has remained popular to allocate urban land use rights free of charge in the post-reform era (Ding, 2003; Lin and Ho, 2005). The marketization level of land allocation is defined as 0 for three reasons. First, the transfer of land use rights through state allocation is operated in a black box without any transparency and competitiveness. Second, the price of land allocation on the basis of the cost of land expropriation is zero or much lower than that of land conveyance (Ding, 2003; Lin and Ho, 2005). Finally, neither the percentage of urban land allocated free of charge in all land that is granted through state allocation nor the price of charged land use rights has been officially released.

\(\text{Given the dominant role played by Chinese municipalities in formulating and operating the urban land market, the empirical cases selected for this study are the Chinese cities at and above the prefectural and prefecture-level regions. All data cover the entire administrative area (shiju), not just the urban area (shiqu), because state-owned urban land in this area shares a single market in practice and data related to land transaction in a municipality are released as a whole in statistics. Our analysis covered the period from 2000 to 2010 and included 318 prefecture-level cities and regions, 15 deputy provincial-level cities, and 4 special municipalities directly under the central government in China in 2000. Since then, although 45 prefecture-level regions were reclassified as cities, the total number of regions at and above the prefectural level has remained stable.}

Three sets of data are analyzed. First, land transfer data are obtained from the China Land and Resources Yearbook. Second, urban and regional statistics on population, GDP and internal urban economic structure, foreign direct investment (FDI), and municipal fiscal revenue and expenditure are derived from the China Statistical Yearbook for Regional Economy. Finally, the basic spatial data are obtained from the National Geomatics Center. The statistical techniques used in data analysis include descriptive statistics, regional comparison, spatial statistical analysis, and panel data regression modeling.

\(\text{4. Land marketization in Chinese cities}\)

Although the emerging urban land market, as one of the definitive features of China’s conspicuous reforms, has been well documented, the temporal–spatial patterns of land marketization are not well understood. Using the marketization level defined in the previous section coupled with the structure of urban land supply and based on the database of Chinese cities at and above the prefectural level, we examined the pattern of land marketization in Chinese cities over time and across space.

China has undergone a relatively sustained process of urban land marketization over the past decade. Fig. 1 shows the increasing urban land supply marketization level in China from 1999 to 2010. In the time span of 11 years, the urban land marketization level increased from 10.4% to 33.2%. Considering the estimation of 37.2% based on the land area data, we can conclude that the urban land supply marketization level in China had reached approximately 35% by 2010. After several years of steady growth, the share of land parcels conveyed through the market track of tender, auction, and listing in total land supply significantly increased in the year 2003 (Fig. 2), indicating the substantial effect of the central land policy proposed in 2002, which mandated that the conveyance of commercial and residential lands be undertaken through these market

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\(^3\) The secondary land market in the Chinese context also include the transaction of houses built on the land that was gained by developers in the primary land market. This type of secondary land market is beyond the scope of this study.

\(^6\) In addition to conveyance and allocation, two other means are occasionally used in practice as well, namely, land renting to reformed state enterprises and pooling of land as enterprise shares. Given that their shares in land supply are quite limited (0.56% and 0.01%, respectively, in 2010) and their prices are not comparable with those of land conveyance (Ho and Lin, 2003; MLRC, 2011), land renting to reformed state enterprises and pooling of land as enterprise shares are eliminated from our analysis.

\(^7\) Although land area might be a better measure than the number of parcels to represent the amount of land supplied in various ways, it was available at the city level only during the period 2003–2008, which is insufficient for assessing the implementation of land management policies introduced in 2002 and 2007 and the effects of these policies on urban land marketization. For this reason, we follow several other researchers to select the number of parcels transferred in the primary market as the weight to reckon the land marketization level of cities (Liu and Lin, 2014; Tao et al., 2010).
mechanisms. However, a similar significant increase did not occur in the land marketization level. The reason can be determined by scrutinizing the structural change of land supply, which shows that the increased share of public leasing had been contributed exclusively by listing for sale, of which transparency and competition were quite limited and the price was relatively low, whereas the percentage of auction and tendering had decreased within the year.

More importantly, the positive effect of this central policy stopped abruptly in the second year of its implementation. The land marketization level measured on the basis of either the number of land parcels or land areas did not increase over the period 2003–2006, but was maintained at approximately 22%. Even the share of public leasing in total land supply did not improve, but was kept stable at approximately 20% (Figs. 2 and 3). The official statistics derived from the Ministry of Land and Resources revealed that commercial land and commercial residential land accounted for 41.2% of the number of parcels and 30.9% of the area of urban land supplied in 2003. This information clearly indicated that, even if all other lands were supplied through allocation or negotiation, approximately half of profit-seeking commercial and residential lands had not been conveyed through public leasing as mandated by the central state.

In the wake of the introduction and implementation of the central policy aiming to expand compulsive public leasing to industrial land in suburb areas, urban land marketization in China has entered a new stage of sustained and rapid development. In the following period between 2007 and 2010, the urban land supply marketization level had improved by 2.4% each year. However, this speed remained slower than it had been during the period 1999–2002 before the introduction of the two central policies (Fig. 1). The difference between these two time periods lies in the different driving forces of land marketization: The rapid marketization process before 2002 was driven mainly by the retreat of state allocation in land supply, whereas the increasing role of market mechanisms in land supply since 2007 has been favored by the increasing contribution of listing for sale. Therefore, we must note that, after a decade of marketization, public auction and tendering have not become popular ways opted for by municipal governments to convey the use rights of urban land resources. In addition, approximately 30% of urban land has remained to be supplied through state allocation without transparency of the procedure and payment for land value. This percentage has even increased continuously in the past half-decade.

Land marketization in Chinese cities has substantial spatial unevenness, which is illustrated in the three maps for the years 2000, 2005, and 2010, as shown in Fig. 4. Four important features of the spatial variation of urban land marketization in China can be identified by scrutinizing and comparing these maps. To begin with, compared with those of most social and economic indicators, the spatial variation of land marketization has been relatively moderate, to a significant extent, because of its generally low level. Most municipal governments have limited incentive to promote urban land supply marketization because of the intense regional competition they are faced with over industrial capital (Cheung, 2009; Liu et al., 2008). Despite the coercive land supply policies of the central state, local governments have selected the eclectic strategy to lease a large amount of urban land through public listing, of which transparency and price are between the market mechanisms of auction and tender and the nonmarket mechanisms of state allocation and closed-door negotiation (see footnote 7). Therefore, the low urban land marketization level has been a common phenomenon across the country. The coefficient of variation has decreased significantly in the past decade (Fig. 1), indicating that cities with a low initial land marketization level have experienced a relatively rapid improvement during the past decade under the pressure of central policies on one hand and by learning from other cities to generate more land-related revenue from the urban land market on the other hand. By contrast, central land policies have imposed only a slight influence on the land supply activities of cities with a higher initial land marketization level.

Subsequently, the significant pattern of spatial agglomeration can be identified in the distribution of cities with high-level and low-level land marketization despite the low level of overall unevenness. We used Moran’s I to determine the spatial autocorrelation of land marketization. The values of Moran’s I derived using the marketization level of cities were always positive and significant and increased from 0.21 in 2000–0.25 in 2005 and 0.39 in 2010, indicating the growing interdependence between the land supply strategy adopted by a specific city and that used by surrounding cities. In fact, this finding reflected the severe regional competition over investment and policy learning process among city governments. If a city is located in a region where most cities tend to attract manufacturing factories by transferring urban land use rights to investors, then the city government will have no choice.

Since the numbers of land parcels conveyed through public listing, tender, and auction are no longer reported in China Land and Resources Yearbook after 2009, we scraped parcel-level land supply data from the official land market website (www.landchina.com). The result shows that 83.4% of marketed land conveyance cases were conducted through listing for sale. Only 16.6% of the total were conveyed through tender and auction in 2010. Fig. 2 indicates that listing for sale holds a dominant position in all three marketized land conveyance approaches in 2007 and 2008. Empirical data further demonstrates that this trend continued at least till 2010.
was even higher in some inland cities than that in coastal regions in the years 2000 and 2005. This finding may be due to the concentration of foreign investments in rapidly industrializing coastal areas for which local governments are competing with negotiated low-priced industrial land. Nevertheless, clusters of cities with a high land marketization level has moved coastward in the following half-decade. To some extent, this trend has indicated the increasing association between land marketization and regional development, which may also imply the growing maturity of land markets in Chinese cities.

Finally, neither the central cities of coastal mega-city regions nor the capital cities of interior provinces have promoted land marketization better than surrounding cities. This phenomenon has made it clear that central cities in present China are all the same as other cities in competing for industrial investments by leasing out urban land through nonmarket mechanisms. Their short-sighted development strategy will undermine the sustainable development and industrial upgrading of the central cities themselves and the city regions as a whole. However, this seemingly irrational and detrimental strategy may not only be caused entirely by the excessive regional competition formed by China’s current political system but also determined fundamentally by the development stage of this country in which the manufacturing sectors remain to be the major drivers of regional development.

5. Empirical model

We examined systematically the determinants of the urban land supply marketization level in Chinese cities to understand the increasing level and uneven landscape of land marketization identified in the previous section. An econometric model was developed by emphasizing the effects of central policies, local motivations, and market mechanisms of land demand on the land supply strategies adopted by municipal governments for their political and financial interests. The panel data model was defined as follows:

$$LM_{it} = \beta_0 + \beta_1 \text{lnpcgdp}_{it} + \beta_2 \text{fispressure}_{it} + \beta_3 \text{industry}_{it} + \beta_4 \text{service}_{it} + \beta_5 \text{lnFDI}_{it} + \beta_6 \text{density}_{it} + \beta_7 \text{policy2002}_{it} + \beta_8 \text{policy2007}_{it} + \beta_9 \text{fispressure} \times \text{policy2002}_{it} + \beta_{10} \text{fispressure} \times \text{policy2007}_{it} + \mu_i + \epsilon_{it}$$

The urban land supply marketization level ($LM$) in city $i$ in year $t$ is the function of a range of variables that will be defined in the subsequent paragraphs. $\mu_i$ is the city-specific, time-invariant effects and $\epsilon_{it}$ is a stochastic disturbance term. Table 1 provides a list of all the variables included in the model, of which the key information is summarized in Table 2.

In order to balance growth and protection, the central state has introduced two important land policies to improve the land use efficiency in Chinese cities by means of promoting urban land supply marketization. We introduced two dummy variables, namely, $\text{policy2002}$ and $\text{policy2007}$, to denote the implementation of the two policies. The values of these variables for observations in subsequent years after the introduction of these regulations will be set as 1; the other values will be set as 0. We hypothesized that these central policies have posed significant and positive effects on urban land marketization in centralized bureaucratic China.

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Fig. 4. Spatial variation of urban land marketization.

but to postpone land marketization as well. In other cases, if most neighboring cities prefer to lease out urban land through market mechanisms to obtain more revenue, then this strategy will also be learned and adopted by the city in a short time.

Moreover, the coast–inland division cannot be clearly identified in maps of land marketization. By contrast, the marketization level

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In practice, local governments vary significantly from one city to another in terms of their fiscal pressure and growth incentive, resulting in an interesting spatial variation in the strategies adopted to maximize their interests in the short term and long term. We used the ratio of local fiscal expenditure to budgetary revenue as a measure of the fiscal pressure placed on the municipal government (fispressure) and the per capita gross domestic product (pcgdp) to denote the economic growth level of a city, which is determinative of the motive of the city government to promote economic growth at the cost of postponing land marketization. If the fiscal deficit is substantial, then the city government will have great incentives to lease out urban land through market tracks with high prices to generate more revenue from land commodification to balance the fiscal budget. By contrast, if the economic growth level is relatively low, then the city government will prefer to lease out urban land through nonmarket tracks to attract investors for a faster growth of the urban economy. Therefore, the effects of these two variables are hypothesized to be positive. In addition, two cross terms, namely, fispressure*policy2002 and fispressure*policy2007, are also included in the model to examine the interactive effect of central policies and their local implementation on land marketization.

Despite the pivotal role of city governments in land marketization in China, the practice of land commodification cannot be adequately explained without considering the role of market forces in affecting the effectiveness of land conveyance strategies and in turn shaping the evolution of these strategies in a transitional economy. In particular, the land supply strategy must be based on the demand structure of the urban land market in a city. Given that industrial land has been conveyed through negotiation with low prices in most cases, the share of the secondary industry in the urban economy (industry) is expected to have negative influences on land marketization. By contrast, the development of service sectors is closely associated with commercial and residential real estates. Thus, the land used by the tertiary industry has often been transferred in open market transactions at high prices. Thus, the influence of the share of the tertiary industry in the urban economy (service) is expected to be positive.

Finally, empirical models of land marketization also include two control variables representing the geographical and economic contexts of the practice of land marketization in Chinese cities. First, considering the significant influences of opening-up on the market-oriented reform in general and the establishment and development of the urban land market in particular (Ding, 2003), we hypothesized that, the higher the level of openness measured by the amount of FDI, the higher the urban land marketization level. The second control variable is population density (density), representing the scarcity of land resource in a city. The high population density will restrain the supply potential of urban land, and thus, facilitate land supply marketization.

The samples used to estimate the model contain all prefecture-level cities and regions over the 11 year period of 2000–2010. Given the high possibility of the existence of outliers in the sample set, we calculated the studentized residuals to identify these observations and excluded them from the sample.\(^\text{10}\) Estimation is conducted for all samples and two subgroups of developed and less-developed cities. A city is defined as developed if its economic growth level measured by per capita GDP was higher than the national average in 2000. Otherwise, the city is defined as less–developed. The collinearity test shows that the variance inflation factors (VIF) of most variables are less than 2, with the exception of industry (3.20) and lnpcgdp (2.61), of which the VIF is entirely acceptable as well (Belsley et al., 2005). Thus, no significant collinearity exists in the model estimations. Considering the fact that several essential factors, such as geographical locations and economic conditions, vary from one city to another and may affect the sign and significance of the coefficients, the city fixed effects model is used to control these effects in estimating the coefficients of explanatory variables. Given that endogenous problems are theoretically inevitable in these models, one year lagged values are utilized for level or stock indicators such as the level of economic growth, the industrial structure of the urban economy, and population density which cannot be substantially affected by land marketization in one year. However, different strategies adopted by local governments in land supply are likely to exert significant effects on city governments’ fiscal pressure and the investment attracted by cities in the year. To deal with the problem of endogeneity, the two-stage least squares (2SLS) method is employed to estimate the models by using lagged values of fispressure, lnFDI, and two cross terms as instrumental variables (IV). Hausman tests indicates the existence of endogeneity for fispressure while not for lnFDI. Hence, IV estimator is used only for fispressure and two cross terms. Statistical tests show the instrumental variables are exogenous and valid. The results of 2SLS estimation are presented in Table 3.

The implementation of the 2002 and 2007 policies has increased the land marketization level by 5.57% and 5.39%, respectively. How-

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\(^{10}\) Studentized residuals can be interpreted as the t statistic for testing the significance of a dummy variable equal to 1 in the observation in question and 0 elsewhere (Belsley et al., 2005; Robbins and Birkenholtz, 2003). In this case, 41 observations were identified as outliers and excluded from the sample.
ever, in-depth investigation of the differences of the coefficient vector of models I and II reveals the decreasing effects of variables related to regional development, such as the per capita GDP, industrial structure, and FDI, after including the two policy variables. This change reminds us to be cautious when evaluating the effective implementation of central land policies and their effects on facilitating local land marketization.

The greater pressure faced by municipal governments has not led to a higher marketization level of a city, as hypothesized previously. Just the opposite, the effect of fiscal deficit is proven to be significantly negative, especially for less-developed cities. It might be the case that local officials in cities faced with greater fiscal pressure are more inclined to generate more land conveyance revenue from leasing out urban land through market mechanisms. However, the unsatisfying urban infrastructure and investment environment constrained by their poor fiscal condition introduces difficulties in attracting investment. Therefore, governments in these cities are at a disadvantage in the negotiation with potential manufacturing investors and land developers over the track and price of land transactions. Local officials in this situation have no choice but to sell a large amount of urban land through nonmarket mechanisms with low prices to obtain a limited amount of land conveyance fee in the current period and promote economic growth and extend the tax base in the long run. Furthermore, this strategy adopted by local governments was significantly proven by the negative sign of the cross term between policy2007 and fispresence, which indicated that cities with greater fiscal pressure are less willing to promote industrial land marketization effectively as requested by the central state. By contrast, the central policy aiming to advance commercial/residential land marketization has been implemented more effectively in these cities than in those with less fiscal pressure. The opposite signs of the two cross terms have substantially indicated the different strategies adopted by local governments in coping with central policies to maximize their own interests both in the short term and long term. This result has challenged the prevailing notion that the main interest of municipal governments in urban land development is generating land conveyance fee and immediate taxes directly from land conveyance (Cao et al., 2008; He et al., 2014; Zhou, 2010). Notably, the interests of municipal governments in urban land development consist of not only current land conveyance revenue but also long-term budgetary tax and not only fiscal expansion but also economic prosperity and urban development. In this sense, long-term development is more important for the municipal government than short-term revenue.

The positive and significant correlation between economic development level and land marketization in a city indicated an optimistic expectation of land marketization in China. This close association has been observed to be consistent in the results of models for both well-developed and less-developed cities. Cities with a long history of rapid growth usually have a large scale of land demand from quality investors on one hand and relatively less land resources, especially those with favorable locations, on the other hand. Faced with this supply–demand contradiction, the most reasonable and optimal strategy for city governments is to encourage the open competition among potential investors over the use rights of scarce urban land resources, which is also a useful means to screen investments and upgrade the industrial structure. In this sense, urban land supply marketization and efficient utilization of urban land resources are both involuntary by-products of urban and economic development rather than the deliberate institutional arrangement of the central state. In other words, although the advancement of market forces may be in conflict with the interests of the governments of less-developed cities in land development, such a situation will be favorable when these cities step into a higher stage of economic development. Therefore, optimistically anticipating that, along with the growth of the urban economy, market mechanisms will be a necessary and popular choice of municipal governments to supply urban land is not a groundless assumption. Otherwise, the market mechanisms will not be adopted by the local governments, even though mandated by the

Table 3
ZsLS estimates of the urban land supply marketization level.

<table>
<thead>
<tr>
<th></th>
<th>All cities</th>
<th>Developed cities</th>
<th>Less-developed cities</th>
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<tbody>
<tr>
<td></td>
<td>I</td>
<td>II</td>
<td>III</td>
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<tr>
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<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>5.57**</td>
<td>0.93</td>
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<td></td>
<td>(8.66)</td>
<td>(0.89)</td>
<td></td>
</tr>
<tr>
<td>policy07</td>
<td>5.39**</td>
<td>9.45***</td>
<td></td>
</tr>
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<td></td>
<td>(8.32)</td>
<td>(11.38)</td>
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<tr>
<td>fispresence*</td>
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<td></td>
<td></td>
</tr>
<tr>
<td>policy02</td>
<td>1.65**</td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>(5.35)</td>
<td></td>
<td></td>
</tr>
<tr>
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<td></td>
<td></td>
</tr>
<tr>
<td>fispressure</td>
<td>-0.51</td>
<td>-1.01***</td>
<td></td>
</tr>
<tr>
<td></td>
<td>(-1.88)</td>
<td>(-3.70)</td>
<td></td>
</tr>
<tr>
<td>lnpcgdp</td>
<td>10.34**</td>
<td>3.59**</td>
<td>3.04**</td>
</tr>
<tr>
<td></td>
<td>(17.06)</td>
<td>(4.00)</td>
<td>(3.41)</td>
</tr>
<tr>
<td>industry</td>
<td>-19.64**</td>
<td>-14.38***</td>
<td>-11.45**</td>
</tr>
<tr>
<td></td>
<td>(-3.68)</td>
<td>(-2.73)</td>
<td>(-2.18)</td>
</tr>
<tr>
<td>service</td>
<td>1.62</td>
<td>2.92</td>
<td>2.47</td>
</tr>
<tr>
<td></td>
<td>(0.27)</td>
<td>(0.49)</td>
<td>(0.42)</td>
</tr>
<tr>
<td>lnFDI</td>
<td>0.28**</td>
<td>0.20</td>
<td>0.22</td>
</tr>
<tr>
<td></td>
<td>(2.11)</td>
<td>(1.50)</td>
<td>(1.67)</td>
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<tr>
<td>density</td>
<td>2.36**</td>
<td>2.29**</td>
<td>1.96**</td>
</tr>
<tr>
<td></td>
<td>(3.72)</td>
<td>(3.68)</td>
<td>(3.17)</td>
</tr>
<tr>
<td>N</td>
<td>2931</td>
<td>2931</td>
<td>2931</td>
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<tr>
<td>R^2</td>
<td>0.169</td>
<td>0.204</td>
<td>0.222</td>
</tr>
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</table>

Notes: *p < 0.1, **p < 0.05, ***p < 0.01. z value in parentheses. Results are corrected for heteroscedasticity.
central government. This is why the semi-market track of listing became a popular approach of urban land conveyance adopted by local governments under the pressure of central land regulations.

Cities with an industrial structure dominated by service sectors tend to have a higher land marketization level than industrial cities. The differential effects of variables denoting the structure of urban industries and land demand on land marketization of developed and less-developed cities have further endorsed the varying strategies adopted by the municipal governments of cities in different stages of economic development. For cities with a low level of economic development, leasing out urban land through nonmarket mechanisms with low prices is the most prevalent, if not the only means to attract external investment and promote urban economic growth. Even many commercial and residential land parcels have been conveyed to developers through negotiation because no investor is willing to develop real estates in cities with limited demand. Against this backdrop, the share of secondary industries in GDP had an extremely significant negative effect on land marketization of less-developed cities, whereas a higher share of service sectors did not lead to a higher level of land marketization in these cities.

Land supply in well-developed cities has followed a different logic. The large number of middle-income and high-income families in these cities has generated a sufficient demand for residential and commercial real estates. Thus, commercial and residential lands have become a scarce resource that many developers are competing for. Therefore, the market mechanism for allocating urban land resources has become the most favorable for the interests of municipal governments and has long been adopted extensively by developed cities to sell commercial and residential lands. For this reason, the share of service sectors in the urban economy has such a significant effect on land marketization of well-developed cities and why the regulation introduced in 2002 that mandated an open market transaction for the supply of commercial and residential lands has a relatively minor influence on these cities than that on underdeveloped cities. By contrast, the 2007 regulation concerning the conveyance of industrial land has been well implemented by high-income cities and has a much more significant effect on the land marketization level of these cities than that of less-developed cities because the dependence of urban and economic development on investment attraction at the cost of conveying low-priced industrial land is not so serious for well-developed cities as for less-developed cities. Accompanied by the high initial marketization level of commercial and residential land supply, land marketization in developed cities has widely reached a high level, which has also provided a sound explanation for the emergence of the large-scale coastal cluster of cities with a high level of land marketization in 2010.

Finally, the positive effect of FDI inflow on urban land market development in China is supported by the results of our models. Furthermore, estimations based on two subgroups of city samples reveal that this effect is significant only for less-developed cities, but not for well-developed cities, indicating that FDI inflow has the function of starting the engine of land marketization rather than driving the process all the way. In addition, the scarcity of land resources is proven to be favorable for urban land supply marketization, which is also consistent with the aforementioned analysis on the positive effect of increasing land scarcity as a result of long-term urban economic development on land marketization.

6. Conclusion and discussion

China has undergone a dramatic economic growth and urban transformation in the past decades, which has been interpreted mainly from two perspectives of the market reform and the developmental state. However, the market reform framework, as an oversimplistic neoliberal explanation, has ignored the active and critical role played by the state in market formation. Meanwhile, the explanatory power of the developmental state has been weakened by the wide ignorance of its spatial dynamics. We argue that only by investigating the formation and practice of marketization per se can we understand the functioning mode of the developmental state and the overall process of reform and development in China.

Marketization in transitional economies is not only a top-down institutional arrangement as claimed by perceived notion, but also a bottom-up process in which local governments have played a pivotal and active role in close association with the emerging market forces. Specifically, the bottom-up process has a double meaning. On one hand, the uneven marketization practice in Chinese cities has been barely conducted by the central state but mainly by the local governments for their own political and economic interests. On the other hand, the emerging market mechanism has displaced the political regulation as the key basis on which local governments make their marketization strategies.

Taking the example of urban land development, we reexamine the practice of marketization by situating it into a broader political and economic context with particular emphasis on the changing central–local relation and state–market interaction over the past two decades. The central state has introduced two important regulations that have made it compulsory for the conveyance of land use rights to be undertaken through market mechanisms to balance development and protection by promoting urban land marketization. These central policies are statistically proven to have significant effects on urban land marketization. However, the degree of land marketization in a city is actually representative of the land supply strategy adopted by the municipal government for its own benefits. City governments have acted as the de facto owner, exclusive supplier, and manager of urban land, and thus, have overwhelming control over the strategy of and the profit from urban land supply. Under central–local power reshuffling, their interests in urban land development are twofold, namely, generating fiscal revenue and promoting economic growth. The empirical results of this study did not support the prevailing notion of land finance, but provided substantial evidences to the greater importance of long-term economic growth and tax base expansion in developing city-specific land supply strategies. Concerning the state–market relation, local governments neither have the incentive to prevent the advancement of the market nor intend to retreat from urban land development, but rather attempt to make the best of market mechanisms to achieve their own political and economic interests in this process. The local governments have fully respected and made full use of different demand logics of industrial and commercial/residential lands on one hand and have timely adjusted the land supply strategy in light of the changing institutional context, regional growth competition, and land demand structure on the other hand. Therefore, heterogeneous strategies of urban land supply have been selected by cities under different economic and geographical conditions, leading to the changing pattern and uneven landscape of land marketization level in Chinese cities.

Urban land marketization in China was initiated in the form of local exploration and experiment in Shenzhen a quarter century ago. Our research reveals that it remains to a great extent a bottom-up practice despite the strong intervention of the central state in recent years. The effectiveness of central land regulations is determined largely by its accordance with the interests of local governments as the implementer. In the case of land marketization, listing for sale with limited transparency and relatively low price has been adopted by most municipal governments as a means to cope with the central regulations mandating public leasing of
land use rights. Moreover, local governments have learned well about how to use market mechanisms to achieve their own political and economic objectives. Therefore, the central government must consider the interests of local governments and the law of the market when making further policies on land management or in other realms.

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