



Administrative hierarchy and urban land expansion in transitional China



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ABSTRACT

In a growing body of literature on urbanization in China, scholars have emphasized the proactive role of the Chinese local state in urban land expansion. Drawing upon official land use change data from 1998 to 2008, this study investigates the relationship between the hierarchical structure of the Chinese urban administrative system and urban land expansion. We find that urban land expansion coincides with administrative hierarchy, and cities with higher administrative levels (ranked by central government) tend to expand more rapidly while controlling for other economic and demographic drivers of urban expansion. Spatial regime models reveal that economic and demographic drivers of urban growth are also sensitive to a city's administrative rank. By quantifying the link between a city's rank and urban land expansion, we conclude that considering the hierarchical structure of the Chinese cities will result in a fuller understanding of the rapid urban growth in China.

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Introduction

With rapid economic growth during the past three decades, Chinese cities have experienced dramatic urbanization and land expansion. The year 2011 was a milestone in history when more people in China were living in cities and towns than in the countryside. By the end of 2011, China had a total urban resident population of 691 million, comprising 51.3% of its total population, up from 26% in 1990 (CSSB[a], 2012). The urban resident population in Chinese cities is expected to increase to 70% by 2035 (CSSB[b], 2008). In the course of this unprecedented urbanization, urban land expansion in China has been even more intensive than demographic urbanization (Bai, Chen, & Shi, 2011), and the total built-up area in China increased from 14,391 km² to 28,940 km² during 1998–2008, with an annual growth rate of 8.07% (CSSB[a], 1999, 2009).

A rich body of literature has already been produced to uncover the causes of urban land expansion in Chinese cities. Scholars have found that urban land expansion has been driven by a rapid growth of non-agricultural activities and economic growth (Bai, Shi, & Liu, 2014; He, Huang, & Wang, 2013; Liao & Wei, 2014; Yuan, Wei, & Chen, 2014). By emphasizing the transforming political economy in China, recent studies have paid more attention to the impact of local states on urban land expansion in China, addressing the notions of local-state corporatism, growth machines and entrepreneurial states (Ma, 2002, 2005; Wei, 2012; Xu & Yeh, 2009; Yang & Wang, 2008; Yue, Fan, & Wei, 2014).

On the other hand, the decentralization of decision-making in China is hierarchical and uneven. In the urban administrative system of China, cities have different ranks represented by the notions of direct-controlled municipalities (zhixiashi), sub-provincial cities (fushengji shi), and prefectural level cities (dijishi) (Ma, 2002). The administrative ranking of a city represents the power of local government in China; higher administrative ranks tend to correspond to stronger policy-making power and larger administrative territory for land conversion, which is also represented by the level of autonomy of their land use planning (Chen, 1991; Ma, 2002, 2005; Ma & Fan, 1994; Shen, 2007). Furthermore, higher ranking cities are more likely to attract investments from the central government and

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also from abroad (Chen & Partridge, 2013). For instance, in the case of Guangzhou city, Xu and Yeh (2005) found that new urban development has greatly benefited from Guangzhou being the capital city of Guangdong province. Other researchers also found that urban land expansion in Hangzhou, the capital city of Zhejiang province, has been fueled by the annexation of neighboring suburban counties (e.g. Zhang & Wu, 2006). In the literature on Chinese urban growth, the association between a city's political status, especially the city's administrative rank and its momentum of economic growth as well as urban land expansion, tends to be self-evident (Xu & Yeh, 2009). However, as Lin, Li, Yang, and Hu (2014) argued, the reshuffling of state power in Chinese urban land development is often treated as an elusive variable. Relatively fewer studies have been done to quantify the exact relationship between a city's rank and its magnitude of urban land expansion, in order to better understand rapid urban growth in China.

Drawing upon more reliable official land use data in Chinese cities, this paper aims to contribute a more quantitative understanding of the link between the administrative ranking of a city and the magnitude of urban land expansion in China. As this research will demonstrate, a higher administrative rank, corresponding to stronger policy-making power and larger administrative territory for land conversion, often results in a more extensive urban land expansion. By applying such spatially explicit methods as spatial regime regression, the study shows that a city's rank can also have a profound impact on other drivers of urban land expansion, such as capital flow and urban–rural migration.

In the following sections, we reviewed the pertinent literature and previous works on urban land expansion in the context of China's economic transition. This is followed by a comprehensive analysis of patterns of urban land expansion with explicit attention being given to different administrative level cities. Secondly, several regression models, particularly spatial regime models, are applied to test the hypothesis that a Chinese city's expansion can be associated with its administrative level/rank while the driving forces of urban land development are heterogeneous in the Chinese urban administrative system.

Literature review

Economic transition and urban land expansion in China

Urban expansion and growth in China is by no means disconnected with its dramatic economic and political transitions over the past three decades (Li, 2005; Ma, 2002, 2005; Xu & Yeh, 2009; Yang & Wang, 2008). As Chinese cities transformed from socialist cities to post-socialist cities, the triple transitions of marketization, decentralization and globalization are driving Chinese urbanization and urban land expansion (Wei, 2007, 2012).

As one of the most significant features of socialist reform, marketization and the reform of the land market have made land one of the most important instruments that enable local states to accumulate wealth and to develop infrastructures and other public facilities (Tao, Su, Liu, & Cao, 2010). Under marketization, land is regarded as a unique and very significant resource for local revenue (Qian, 2008). In addition, decentralization of economic governance grants local states autonomy to plan their cities and promote urban land expansion (Ma, 2002; Xu & Yeh, 2009). As one of the most representative policy instruments, development zones (DZs), have been one of the most significant components of urban development strategies in Chinese cities (Cartier, 2001; Ding & Zhao, 2011; Tao et al., 2010; Wei, 2012; Wei & Leung, 2005; Yang & Wang, 2008). In 2011, there were more than 6500 DZs in China. At the same time, globalization, symbolized by the huge flow of foreign development, has provided more incentives for local states to

integrate going global and developing DZs in their urban land use planning, coined as “new town fever” in Chinese cities (Ding & Zhao, 2011; He et al., 2013; Ma, 2002; Wei, 2005; Wei & Leung, 2005).

As the process of economic transition spreads across the Chinese cities (Bloom, Canning, & Fink, 2008; Brueckner, 2000; Xu & Zhu, 2008), researchers have characterized urban expansion as an outcome of economic growth (Deng, Huang, Rozelle, & Uchida, 2008; Seto & Kaufman, 2003). Moreover, in the process of urbanization, cities attract rural populations, which lead to large urban land expansion (Bloom et al., 2008; Seto, Fragkias, Guneralp, & Reilly, 2011). Other works also found massive migrations from rural areas have resulted in more demand for construction land for residential use (Wei, 2005). Notably, recent studies further the debate regarding urban land expansion in China by considering the specific political economy of land development (Li, 2005; Yue et al., 2014). The detailed structure of the urban administrative system (Ma, 2002, 2005), land governance (Xu & Yeh, 2009), growth pole (Zhang & Wu, 2006), hierarchical system rebuilding process (Ma, 2002), and decentralization of power in China (Ma & Fan, 1994; Wei & Zhao, 2009), also have contributed to a better understanding of how the local state can play a proactive role in Chinese urban land expansion.

Administrative system and urban land expansion in China

In most developing countries, a land administrative system is a strategic component of land policy and is intended to reform the economic system, decrease injustice, re-build the government system and eliminate poverty (Steudler, Rajabifard, & Williamson, 2004; Williamson, 2001). The specific question about administrative ranking and urban expansion in China is legitimate since Chinese cities are institutionalized under different administrative authorities. For instance, only four provincial level cities have limited legislative power of land administration. On the other hand, the lower level cities are more strictly controlled by the central government through the land administrative system. In the context of China's economic transition which began in 1978, an establishment of the land use principle of legitimacy was implemented as part of the reshuffling of power relationships between states at different levels (Castells, 2000). And the process is specifically characterized by tiered political and economic power structures in the national hierarchical system (Ma, 2005).

Because of its relatively inflexible hierarchical structure, the rank-based urban administrative system in China is quite different from that of western countries, and has a strong effect on local development (Bennett, 1997; Ma, 2002). Local land use planning and land administration are mainly implemented through the urban hierarchy administrative system, which is how the significant driving forces of the land development are influenced by the urban hierarchical system or a city's rank. Surprisingly, the literature on the role of urban hierarchy in China's urban and regional development is limited (Chen & Partridge, 2013; Ke, He, & Yuan, 2013), but as found in Ke and Chen, urban hierarchy has become a key lens to better understand the uneven economic growth and regional development in China. This study continues to focus on the hierarchical structure of the Chinese urban administrative system with the aim of shedding further light on the urban land expansion in China.

An analytical framework

In order to comprehensively investigate the relationship between urban hierarchy and land expansion in transitional China, we proposed the use of an analytical framework to better summarize the dynamics of urban land expansion (Fig. 1).

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