



# Suburban industrial land development in transitional China: Spatial restructuring and determinants

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## ABSTRACT

Along with rapid urbanization, suburban manufacturing development is one of the most prevalent phenomena in contemporary cities around the developing world. However, there are limited quantitative studies on the restructuring of intra-urban manufacturing landscape in the context of developing countries. Based on the theoretical perceptions of neoliberalism and the debate between neoliberal theory and dirigisme theory, this study develops an interpretive framework of industrial land development combining state force and market force under transitional economies. This context-specific framework is used in a case study to investigate the determinants of industrial suburbanization in Hangzhou, China, and thus to disclose the definite roles played by local governments and market forces. The historical analysis indicates that the manufacturing spatial restructure is characterized by a big decline of industrial land in central city, as well as emerging industrial clusters in suburban areas. We also find that both governmental policies and marketization have significantly shaped the restructuring of manufacturing landscape. Proactive planning policies, development zone fevers, and controlled land prices are the most important policies influencing manufacturing locational decision.

## 1. Introduction

With the acceleration of the industrialization and urbanization, manufacturing development has generally moved outwards and leapfrogged into suburban areas across different cities of global countries. The tendency for manufacturing industry to move out from the dense central city and to seek spacious quarters at urban fringe, which is termed as “industrial suburbanization”, can trace back to the mid-nineteenth century primarily in the developed world, especially in North American metropolitan areas (Lewis, 2008). Although scholars have developed a large body of knowledge about the pervasive phenomenon of industrial suburbanization (e.g., Bull, 1978; Miller, 2017; Norton & Rees, 2007; Stuart, 1968; Walker, 2001; White, 1976), such studies in the context of developing countries are still in their initial stages (e.g., Gao & Yuan, 2017; Shen & Wu, 2013). Empirical studies into the dynamics of industrial suburbanization should be more focused on the specific context of developing countries, given that the distinct institutional arrangement and uneven socioeconomic development might be reflected in the characteristics of industrial landscape.

China's phenomenal urban transformation in recent years presented an indispensable and valuable case among the developing countries and

transitional economies for complementing such studies. Since the 1990s, many Chinese cities have experienced the decentralization of manufacturing from the city center and the formation of new agglomerations in suburban development zones (Feng, Zhou, & Wu, 2008; Gao, Liu, & Dunford, 2014; He, Wei, & Pan, 2007). Scholars have noticed the transformation from industrial land use to high-end residential, commercial or serviced land uses in the city center (Gao et al., 2014; Liu, Yue, & Fan, 2011; Wei, Bi, Wang, & Ning, 2016). The location of manufacturing industry in China has appealed to academic interest in recent years, focusing on a particular industrial sector or a specific capital source such as foreign-invested enterprises (e.g., Wei et al., 2016; Wei, Chi, Li, & Pan, 2008; Wei, Luo, & Zhou, 2010; Wei, Yuan, & Liao, 2013). However, relatively less empirical research has been done to examine the dynamic and determinants of manufacturing restructuring from the land use perspective, possibly due to the lack of fine scale data.

Moreover, there are controversial arguments concerning the roles of governments and the emerging market and their interactions in the Chinese restructuring process. The interpretive framework of neoliberalism has been adopted in the extensive literature on urban growth and transformation of cities (e.g., Elcin, 2014; Grossi & Pianezzi, 2017;

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Waley, 2013). It asserts that the market plays as the main regulative mechanism, and the state plays a lessened role within an institutional framework characterized by strong private property rights, free markets, and competitions (Harvey, 2005; Hay, 2007). The consensus has also inspired neoliberal reforms in transitional economies (Meurs, 2000), such as Latin America (Woller, 1994) and East Europe (Akçali & Korkut, 2015). In terms of the transitional economy of China, it has demonstrated characteristics compliance with as well as deviant from the neoliberal prescription (Liu, Cao, Yan, & Wang, 2016; Liu & Lin, 2014). On one hand, the Chinese reforms involved the entrepreneurialization of local government, the privatization of the urban economy, the marketization of public services, and the commodification of urban space (Harvey, 2005; Huang, 2008; Liu & Lin, 2014), similar to many neoliberal strategies practiced in the cities of different world regions (Rossi & Vanolo, 2015). On the other hand, Chinese peculiar state-market relations, that is, the socialist state maintains its power and exerts strong control over market transition despite increased marketization of the planned economy, going against the neoliberal tenets (Cartier, 2011; Liu et al., 2016; Tian, Ge, & Li, 2017; Wang, 2014). These controversial features have raised significant theoretical questions concerning what definitive influences of the state and market in transitional China and their interaction have on the development of industrial land.

This paper complements the existing publications on the investigation of industrial suburbanization in the Chinese context. Based on land use data, this study provides an alternative perspective for investigating the spatiotemporal evolution of industrial suburbanization, in contrast to the existing enterprises-based studies. A government-market combined analytical framework is adopted to examine the determinants of the industrial suburbanization, using logistical regression models. The study thus may provide an understanding of the trajectory and logics of “neoliberalization” in the context of China and perhaps in other developing countries or transitional economies.

This paper attempts to address the following questions. How does the spatial layout of industrial land vary over time and across space, particularly between the city center and the suburban areas? What are the exact roles played by local governments and market forces in this process? Hangzhou is well suited to the purpose of this study because it is a typical mega city undergoing rapid suburban industrial land development and the transformation from a planned economy to a socialist market economy, and because it has rarely been especially analyzed from spatiotemporal perspectives. The remainder of this paper is organized as follows. Section 2 provides a literature review, and puts forward the interpretive framework. Section 3 introduces the study area, data and methodology. Sections 4 analyzes the dynamics of industrial suburbanization. Section 5 presents the results of two logistic regression models. Section 6 discusses on the influences of government and market forces during the suburbanization process. Section 7 concludes the paper.

## 2. Interpretive framework

The dynamic interplay between local government and market has greatly influenced urban development patterns (Jacobs, 2016; Kennedy, 2007; Rojas, 1995; Wang, 2014), and industrial land reconstruction is no exception. The rise of neoliberalism provides an ideological and theoretical basis for a government-market combined framework to interpret the process of industrial land transformations. Being identified as the most dominant ideology of governing contemporary capitalist cities (Bauman, 2001; Hutton & Giddens, 2001), neoliberalism has spread across the globalizing world (Rossi & Vanolo, 2015), and become the kernel of contemporary urban governance (Brenner & Theodore, 2005). Despite the emphasis placed on the role played by emerging market forces, neoliberal scholars have also spared considerable effort to the sophisticated relationship between state and market and the extent of state involvement in the economy. The

theoretical literature of neoliberalism, therefore, differ from previous ideological models, which consider a wide range of economic factors including accessibility, land availability, land price, labor cost, and agglomeration economy related with manufacturing location typically (Li, Wei, & Zhou, 2017; Wei et al., 2016). For instance, in the classical and neoclassical economic models, areas with minimized cost where production will yield maximum profits are the optimal location for manufacturing firms (Hayter, 1997; Smith, 1966; Weber & Friedrich, 1962). The new economic geography model further emphasizes the effects of agglomeration economy on manufacturing restructuring (Krugman, 1991). Influenced by the new institutional economics, one of the most important neoliberal theories, increasing attention has been paid to the role of government interventions in the industrial development, including tax incentives, planning, regulations and other legal instruments (e.g., Bevan, Estrin, & Meyer, 2004; Will, 1964; Zhou, Yang, Wang, & Xiong, 2017).

In the Chinese transitional context that is transforming from a centrally planned economy to a market-oriented one, the interaction between government and market and its variation have started to receive heightened theoretical attention recently. Besides the ordinary market forces, a lot of Chinese literature have underlined the role of institutions and government policies, especially the influence of development zones on firm locations (e.g., Gao & Yuan, 2017; He, Wei, & Xie, 2008; Wei et al., 2010; Wei et al., 2013; Wei et al., 2016; Yuan, Wei, & Chen, 2014). Furthermore, the intermingling relationship between governmental and market forces, under which the local state plays a dominant role and the market force has been less significant, has been increasingly understood in the literature, such as Ye (2014), Tian et al. (2017) and Liu et al. (2016). A few scholars have further analyzed the determinants of manufacturing restructuring by quantifying the factors of government policies and institutions. For instance, Gao and Yuan (2017) examined the influences of marketization, globalization, decentralization, and urbanization on the restructuring of manufacturing spaces. These studies have contributed the theoretical question of state-market interactions in Chinese context. They will bring instructive enlightenment to the study on industrial land reconstruction, either.

By combing the aforementioned literature, we developed an analytical framework (as seen in Fig. 1) based on the hypothesis that local government plays a significant role in guiding the restructuring of manufacturing, and market forces have a rising influence on the local government's behaviors during the process. Both governmental forces represented by planning intervention and spatial policies (Han, Hayashi, & Cao, 2009; Wei, 2012), and market forces consisting of land prices, land availability, transportation accessibility, and proximity to labors (Hayter, 1997), are important determinants of industrial land conversion.

First, through a series of formal institutions, the local governments have played a proactive role in guiding the enterprise location decision (Zhou et al., 2017). Since the tax reform,<sup>1</sup> the local governments have increased local expenditure and reduced share of local tax revenue with the central government. They are responsible for local economic development and public service provision within their respective jurisdiction (Wei et al., 2013). The local governments are confronting with the huge financial burden, which provides them with strong incentives to attract investments and increase local revenues (Liu et al., 2016; Wu,

<sup>1</sup> Since the 1980s, the central government has reformulated the fiscal relationships between the central and local governments, which called a “fiscal contract” system to contract the responsibilities of revenue generation and remittance to local governments (Wong, Heady, & Woo, 1995). In 1994, a new tax-sharing system was built up that clearly distinguished between national and local taxes, 75% of the value-added tax would be collected by central government and 25% shared by local governments. Since then, local governments' revenue sources include urban land revenue, business tax, income tax and profits from local enterprises, personal income, and fixed investment direction-adjustment tax (He et al., 2008).

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