Cities 60 (2017) 323–332

Contents lists available at ScienceDirect

Cities

journal homepage: www.elsevier.com/locate/cities

Government intervention and land misallocation: Evidence from China

Zhonghua Huang [a], Xuejun Du [b,*]

[a] College of Economics and Management, Zhejiang University of Technology, Hangzhou 310023, China
[b] School of Economics and Management, Zhejiang University of Science and Technology, Hangzhou 310023, China

ARTICLE INFO

Article history:
Received 22 April 2016
Received in revised form 4 October 2016
Accepted 9 October 2016
Available online xxxx

Keywords:
Government intervention
Land misallocation
Land leasing
Local government
China

ABSTRACT

Strong government intervention exists in China's land market compared to other countries. This paper examines the effects of government intervention on land misallocation and identifies its source, based on Chinese prefecture-level cities' panel data from 2003 to 2012. The empirical results show that local government's distorted land-leasing price policy, by which it leases out industrial land at a lower price, and leases out commercial and residential land at a higher price, leads to land misallocation between the industrial and service sectors. Local governments' revenue and political incentives also cause land misallocation. More land is leased to the industrial sector when local governments intervene more in land prices and rely more on investments, and when local officials have an incentive to signal performance in the early years of their tenure. The distorted land-leasing policy results from local governments' attracting investments and land-financing incentives, which leads them to lower industrial land prices to attract investments, and to push up commercial and residential land prices in order to pursue revenue. Political cycles foster the effects of land price distortion on land misallocation. Reforms of China's land-leasing system and central-local fiscal institutional arrangements are needed to reshape local governments' land-leasing incentives and remove land price distortion.

1. Introduction

Government intervention in land market has long been the focus of land use policy and land economics studies. Some scholars support government intervention with respect to reducing the externalities of land use and regulating the land market (Brueckner, 2009); however, others suggest that this would induce distortion in the land market (Peng & Thibodeau, 2012; Glaeser & Ward, 2009; Jansen & Mills, 2011). Although government intervention is important for the land market, a distorted land policy, no matter how well intended or development oriented, would cause problems with unintended resource misallocation and productivity loss (Restuccia & Rogerson, 2013; Restuccia & Santaeulalia-Llopis, 2015).

China provides an ideal environment for studying government intervention and land misallocation. Compared to other countries, there is much more government intervention in the Chinese land market. The mechanism through which government intervenes in the land market differs from that of Western countries, where such intervention comes through land use regulation, including land development permits, urban growth boundaries, density limitations and zoning (Brueckner, 2009). However, state-owned land in urban China is controlled by local governments (Ho & Lin, 2003),which monopolize the land supply and land market through their monopoly rights to supply land for urban use and to lease land to developers (Deng, 2003; Lin & Ho, 2005). Local governments intervene in the land market by leasing land for various uses to different sectors, by manipulating the transaction method and distorting land prices (Lin & Yi, 2011; Yang, Ren, Liu, & Zhang, 2014).

Strong government intervention causes land misallocation. Compared to developed and other emerging-market counties, China's urban land-use structure has over larger share of industrial land and relatively lower share of residential and commercial land (Cai, 2011). The national average share of industrial land is 26%, and in some cities even 40%, which is much larger than that in cities of Western countries.[1] It is becoming more widely acknowledged by scholars and Chinese government that China's urban land use structure is distorted, and that this is related to local governments' land-leasing behavior (Tao, Su, Liu, & Cao, 2010).[2] The much lower share of residential land leasing results in high housing prices, distortion in land use structure, exacerbation of land misallocation, and a decrease in urban productivity (Bertaud, 2007).

Many studies of Chinese land markets have focused on the role of government in land supply. They have analyzed local governments' land supply patterns (Tao et al., 2010; Yang et al., 2014), incentives for local governments' land leasing (Lichtenberg & Ding, 2009; Cai, Henderson, & Zhang, 2013; Kung & Chen, 2014) and the impacts of government intervention on the land market and urban development

* Corresponding author at: School of Economics and Management, Zhejiang University of Science and Technology, Hangzhou, 310023, China.
E-mail address: duxuejun@aliyun.com (X. Du).

[1] http://www.mlr.gov.cn/xwdt/mtsy/qtmt/201505/t20150525_1351657.htm.
[2] The problem of over-leasing industrial land and allocating less for residential purposes is increasing acknowledged by the Ministry of Land and Resources.

http://dx.doi.org/10.1016/j.cities.2016.10.006
0264-2751/

(Ding, 2004; Tian & Ma, 2009; Ding & Lichtenberg, 2011). For example, Du, Thill, and Peiser (2016) found that the Chinese government's restriction on negotiation in land leasing improves urban land productivity. Yang et al. (2014) found that in Beijing, local government land-leasing policy significantly influences the land market, and that price differences exist between listing and tender. Some scholars have studied Chinese local governments' land-financing behavior and examined their fiscal and political incentives (Wu, Li, & Yan, 2015; Kung & Chen, 2014). However, to the best of our knowledge, there have been few studies on the causes and consequences of government intervention in land leasing in China, especially from a resource misallocation perspective.

This study aims to examine the effects of a particular type of government intervention arising from a biased land-leasing price policy on land misallocation, and to identify the sources of land misallocation and local governments' intervention. It provides new insights into how well-intended government intervention in the form of a development-oriented land-supply policy could lead to land misallocation through distorting land-leasing structures.

The next section reviews the background of China's urban land supply system. The subsequent section presents the model of local government behavior in the Chinese land market and describes our empirical framework. This is followed by the empirical results and discussion. We provide further regression results and robust checks in the additional evidence and robust analysis section. Conclusions are made in the final section.

2. China's urban land supply system

2.1. Context of urban land supply in China

Land is not just a fundamental production factor, but an important policy tool for local governments to stimulate economic growth in China (He, Huang, & Wang, 2014). The existing dual land property rights system and segmented urban and rural land markets offer great potential for government intervention in land supply. In China, urban land owned by the state is allowed to trade on the open market, while rural land owned by rural collectives is prohibited from being traded, except within the village in which it is located. Local governments have monopolized the requisition of rural land and the supply of land for urban construction (Zhu, 2004; Zhu, 2005), and rural land cannot be used for commercial purposes until it has been requested by local governments and transferred from collective to state ownership. China established the urban land market in 1988, since then local governments have been able to lease urban land for compensated use. Local governments also have a monopoly on leasing out land to developers and other commercial users. Without clear individual land property rights, local governments can easily intervene in land leasing and make it an important extrabudgetary revenue source (Wang, Wang, Su, & Tao, 2012).

The 1994 centralized fiscal reform had a radical impact on local governments' fiscal revenue. It sharply cut local governments' budgetary revenue, but without correspondingly changing their expenditure responsibilities (Xu, 2011; Zhan, 2013). Suffering from poor fiscal conditions, local governments resorted to land leasing as a new source of revenue (Cai, 2011; Kung & Chen, 2014). This became an increasingly popular tool for local governments to gain extrabudgetary revenue and finance infrastructure and urban construction (Cao, Feng, & Tao, 2008).

Since the 1994 fiscal reform, local governments have transferred from intervening enterprise to expropriating land under increasing fiscal pressure (Zhan, 2013). They can expropriate rural land at a low price and then lease it out to potential users at a much higher price for residential and commercial use (Ding, 2003). China's regional decentralization reform has greatly motivated local governments to compete hard for outside investments and promote business development in their jurisdictions (Jin, Qian, & Weingast, 2005; Cai & Treisman, 2005). As a fundamental production factor controlled by them, local governments can lease out industrial land at a very low price for attracting investors (Tao et al., 2010). This land-centered development mode is an important element in China's economic growth miracle of the last 30 years (Wu et al., 2015; Xu, 2011).

2.2. Local government land-supply behavior

Local governments lease out land to commercial users through four methods: negotiation (*xieyi*), which is a nonmarket transaction; and tender (*zhaobiao*), auction (*paimai*) and listing (*guapai*), which are market transactions and entail leasing out land in a more competitive and transparent way. The price gap between market and nonmarket transactions is quite significant, and a competitive market pushes up the land-leasing price (Tao et al., 2010).

Local governments generally prefer to lease out industrial land by means of negotiation, and commercial and residential land via open-market transaction. Most industrial land leased out via the negotiation method at a lower price is used to attract manufacturing investments and to promote industrial development (Huang & Du, 2016). Most of the land leased through market transactions was residential and commercial land, and has been leased out at a higher price in order to gain extrabudgetary revenue to finance infrastructure. Although the Chinese Ministry of Land and Resources issued Document No. [2007]78 demanding that industrial land be leased out by transparent market means (including tender, auction and listing), local governments continue to lease industrial land at low prices via negotiation or disguised as market transactions.

Considering the functions of the various land uses, local governments allocate land quotas and lease out land between the industrial and service sectors. Their land-leasing behavior is restricted by the land quota system, which the Chinese central government designed to protect farmland and to limit the land quota that local governments could lease out annually. However, local governments have enough autonomy to distribute land-leasing quotas between the industrial and service sectors at their will.

As noted above, local governments are supposed to lease out most land via an open-market transaction method in order to gain more revenue; however, they also extensively use non-market transaction methods to lease out industrial land. In order to understand this, we should analyze local governments' multiple incentives for land leasing. First, land leasing can generate a one-time land leasing (land conveyance) revenue, especially for high-priced commercial and residential land leasing. Local governments share these revenues with central government and acquire about 75% of the gains. As these land revenues are extrabudgetary, local governments have a strong incentive to lease land and use these funds to balance their fiscal deficit (Wu et al., 2015). Second, leasing out industrial land can attract investments. Industrial investment is very important for local governments, not only because it can generate sustainable tax income and a positive spillover effect on the economy, but also because it is an important indicator by which to evaluate the performance of local governments (Cai, 2011; Su, Tao, Xi, & Li, 2012; Kung & Chen, 2014).

The attributes of different uses of land also contribute to explaining local governments' land-leasing behavior. Local governments lease out land to two kinds of investors with different strategies: industrial investors, who mainly use the land for manufacturing enterprises; and residential and commercial real estate developers. Industrial businesses are often not location-specific, so local governments must offer lower prices to compete with other jurisdictions in order to attract mobile investments. Residential and commercial real estate businesses, on the other hand, are location-specific, so local governments can lease out residential and commercial land at very high prices in order to capture the land value (Tao et al., 2010; Wu et al., 2015). Residential and commercial real estate investment mainly generates a large, lump-sum