



## Increasing returns, land use controls and housing prices in China

Dingsheng Zhang<sup>a,b</sup>, Wenli Cheng<sup>c,\*</sup>, Yew-Kwang Ng<sup>d</sup>

<sup>a</sup> IAS and EMS, Wuhan University, China

<sup>b</sup> CEMA, Central University of Finance and Economics, China

<sup>c</sup> Department of Economics, Monash University, Australia

<sup>d</sup> Division of Economics, Nanyang Technological University, Singapore

### ARTICLE INFO

#### Article history:

Accepted 18 January 2013

#### JEL classification:

R31  
R38

#### Keywords:

Increasing returns  
Land use controls in China  
Housing prices in China

### ABSTRACT

The Chinese government has been active in trying to cool the alleged bubbles in its housing markets, especially in urban areas. This paper argues that the high housing prices are partly caused by some real factors, including the policy of restricting land uses, in particular the maintenance of a minimum overall agricultural acreage. A simple model of three sectors (housing, agriculture, and others) is constructed to examine the effects of the artificial constraint. The role of increasing returns in the non-agricultural sectors in exacerbating the policy biases is also examined. The model is then calibrated to estimate the effects of land use control policy on housing prices in China.

© 2013 Elsevier B.V. All rights reserved.

## 1. Introduction

### 1.1. Purpose of the paper and its contributions

Housing prices in China, especially in large urban cities, have risen substantially in recent years. Data from China Statistical Yearbook (1998–2012) suggest that average housing price (per square meter) for the country as a whole increased by 160% between 1997 and 2011, or 7% per annum. Housing prices in major cities increased even more. Wu et al. (2012) estimate that housing prices in Chengdu, Hangzhou, Shanghai and Shenzhen appreciated by at least 10% per year between 2003 and 2010, while housing price in Beijing has grown close to 20% per annum during the same period. The rising price of housing has led to serious concerns about the potential of a housing bubble which may in time burst, causing significant damage to the economy. Amid such concerns, the Chinese government has introduced various policies in an attempt to cool down the allegedly overheated real estate market.

Whether there is a housing price bubble building up in China is debatable. On the one hand, while housing prices in Chinese cities have risen rapidly in the last 15 years or so, disposable income of Chinese urban residents has grown even more (see Fig. 1). On the other hand, housing affordability (measured by the ratio of current income to housing prices) does seem to have declined although

there are signs of improvement in recent years. According to Yang (2009), during the period 1998 to 2003 the house price to income ratio was relatively stable within the range of 6.1 to 6.4. The ratio rose sharply in 2004 to 6.9 and continued to climb and peaked at 7.4 in 2007, but fell back to 6.8 in 2008.

This paper does not directly address whether the urban real estate market in China is over-heated. Instead, starting from the observation that housing prices have increased substantially in the last 15 years or so, it investigates some of the “real” (as compared to monetary and speculative) factors that are behind the price rise in urban housing. In particular it develops a simple model with three sectors – agriculture, manufacturing and housing services – to study the impact of land use controls on the housing market. The land control policy it focuses on is the government’s policy of maintaining a minimum acreage of 1.8 billion *mu* (i.e., 120 million ha) for agricultural use.

Our model shows that if the land use controls are binding (i.e., the government-fixed acreage for agricultural use is higher than the quantity of agricultural land demanded in a free market), housing prices will be artificially pushed up. Moreover, as the degree of increasing returns to scale in housing increases, more price distortion will be created by land use controls, and larger welfare losses will result. A calibration of our model suggests that over the period 1998–2010, land use controls had an increasing impact on housing prices as the share of land in housing value rose. In 1998 for example, land use controls may have raised housing prices by 1–5% (compared to the case without land use controls); by 2010, the estimate rose to 28–58%.

To our knowledge, no studies have formally investigated the effect of government land use policies on the Chinese housing market. This paper makes a contribution towards filling this gap in the literature. Another contribution of our paper is that, different from other studies

\* Corresponding author at: Department of Economics, Monash University, Caulfield, Vic. 3145, Australia. Tel.: +61 3 9903 1566.

E-mail address: [wenli.cheng@monash.edu](mailto:wenli.cheng@monash.edu) (W. Cheng).

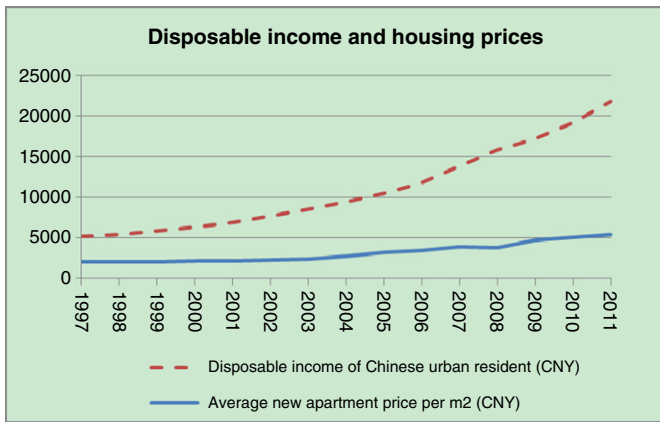


Fig. 1. Disposal income of urban resident and housing prices (1997–2011).

in the existing literature, it studies the *interaction* between increasing returns to scale in the production of housing services and land use controls that limit the output of housing services.

### 1.2. Land use controls and housing market in China

The development of a housing market in China has been a gradual and on-going process. From the beginning of economic reforms in 1979, it took nearly two decades for the country to move from government allocation of housing to a dual track system in which market based allocation and government allocation co-existed to market allocation of housing (Ye et al., 2006). An important milestone of housing reform was the issuance of the 23rd Decree by the State Council in 1998, which disallowed work units to develop new residential housing units for their employees.

Since 1998, market forces have been primary drivers of housing prices in China; however, the government continues to play a very important role because the government owns the land and exercises significant control over its use. For example, as made clear by the Chinese Premier (2002–2012), Wen Jiabao, the Chinese government intends to maintain a minimum acreage of 1.8 billion *mu* (i.e., 120 million ha) for agricultural use. As an important part of this policy, land classified as agricultural, even if close to large urban centers, is not allowed for commercial housing without special permission. This policy appears to have been successfully implemented. As shown in Table 1, agricultural land use between 2002 and 2010 was relatively stable at slightly above 120 million ha. In fact agricultural land use has increased due to higher utilization of land in remote areas. Setting aside possible political rationales for the policy of maintaining a minimum level of agricultural land use, it seems clear that the policy would have an unintended effect of raising housing prices. The focus of this paper is on this unintended effect of maintaining a minimum level of agricultural land use.

**Table 1**  
Agricultural land use in China (10,000 ha).  
Source: China statistical yearbook (2003–2011).

Year	Grains	Cotton	Oils	Sugars	Total
2002	10,399	418	1487	180	12,484
2003	9941	511	1497	165	12,114
2004	10,161	569	1452	157	12,339
2005	10,427	506	1431	156	12,520
2006	10,538	540	1380	178	12,636
2007	10,553	559	1094	167	12,373
2008	10,670	576	1271	193	12,710
2009	10,897	495	1360	188	12,940
2010	10,987	485	1397	192	13,061

Apart from limiting the total amount of land for non-agricultural use, the Chinese government has over time developed a system of managing urban land use. First, the Chinese urban land reserve system established in 2001 makes municipal governments as monopoly suppliers of land, controlling the quantity, structure, and timing of land supply. Second, the land granting system allocates use rights of land to individuals for a certain number of years: 70 years for residential uses, 50 years for industrial or mixed uses, and 40 years for commercial uses. Prior to 2002, the allocation of land-use rights was not transparent. In 2002, the Ministry of Land and Resources introduced a policy requiring that land-use rights be granted by invitations to tender, public auctions or listings (Du et al., 2011). By the time this policy was fully implemented in 2004, the demand side of the land-use market has become very competitive.

### 1.3. Literature review

A number of studies in the literature have considered the effects of land use controls on housing prices in different jurisdictions. For example, Hannah et al. (1993) suggest that for the period 1973–1988, the rise in house prices in Korea resulted from the government's tendency to under-allocate land to urban residential use. Glaeser et al. (2005), (2006) show that in the US, artificial supply restrictions were a key driver for housing price increases since 1970. Ihlanfeldt (2007) finds that more restrictive regulation increased house price and decrease land price in 100 Florida cities. Moran (2007) argues that strict State or Territory Government regulation on the supply of land for housing contributed to high land prices and housing costs in Australia.

In the context of the Chinese housing market, there are many studies that investigate possible determinants of housing prices in China and provide different perspectives on whether there are price bubbles in the Chinese housing market. For instance, Zhang et al. (2012) look into various possible determinants of housing prices in China over the period 1999:01 to 2010:06. They identify mortgage rate, producer price, broad money supply and real effective exchange rate as the key variables explaining housing price dynamics and suggest that the Chinese government should probably adjust monetary policies to contain the housing bubble. Ren et al. (2012) however dispute the existence of a housing bubble. Analyzing data from 35 cities in China based on the theory of rational expectation bubbles, they find no evidence of such bubbles in the Chinese housing market. Shen (2012) further suggests that if measured in terms of the ratio of permanent income to housing price, housing affordability in China is very high relative to other developed countries.

There are also some empirical studies that link the land use to housing prices. For example, Zhu (2005) and Zhang (2008) note that government's land supply policy had a significant impact on housing prices. Wu et al. (2012) suggest that much of the housing prices rises in large Chinese cities (in particular Beijing) in recent years are driven by increases in land values. We have not however found any theoretical investigation of the effect of government land use policies on the Chinese housing market. This paper makes a contribution towards filling that gap.

This paper relates to another strand of literature, namely, that on increasing returns. Increasing returns in production may derive from difference sources, including specialization and the division of labor (Arrow et al., 1998; Cheng and Yang, 2004), internal scale economies due to the presence of fixed costs (Dixit and Stiglitz, 1977) and external economies associated with agglomeration (Marshall, 1920). This paper uses the basic construct of Dixit and Stiglitz's (1977) model of monopolistic competition to study the effects of land use restrictions in the context of increasing returns due to fixed costs observed in the housing sector. That the housing sector exhibits significant increasing returns is explained by the features of process of house construction. Typically, building a house/apartment involves

Download English Version:

<https://daneshyari.com/en/article/5054874>

Download Persian Version:

<https://daneshyari.com/article/5054874>

[Daneshyari.com](https://daneshyari.com)