



Housing prices raise wages: Estimating the unexpected effects of land supply regulation in China[☆]



Wenquan Liang^a, Ming Lu^{a,*}, Hang Zhang^b

^a Department of Economics, Shanghai Jiaotong University, Shanghai 200052, China

^b Department of Economics, Fudan University, Shanghai 200433, China

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ABSTRACT

China is currently experiencing rapid rises in labor cost. Since 2003, the central government has increased the share of land use quotas allocated to the central and western regions to support their development. As a result, the relative decline in land supply in the eastern regions has raised housing prices and consequently increased wages, damaging the competitiveness of the Chinese economy. On the basis of city-level panel data from 2001 to 2010, we used the per capita land supply as the instrument variable for housing prices and analyzed the sub-samples along the border between the inland and the eastern regions. We found that land supply policies have led to the rapid growth of housing prices and increased wages in the cities where land supply has been restricted, mainly in eastern region. This study indicates that regardless of the geographical advantages of the east region, land supply policies have had a negative impact on the efficiency and competitiveness of the Chinese economy.

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1. Introduction

Accompanying the slowdown of the Chinese economy, labor costs have experienced a rapid rise, which is thought to be indicative of China losing its competitive advantage. Since the reform and opening-up in 1978, the super-high speed of economy growth and industrialization should have ascribed to the reallocation of labor forces from rural to urban areas across regions. This massive rural-urban migration made China the world's factory. However, lots of coastal cities have suffered labor shortages, and even the wages of workers and rural migrants have undergone a rapid rise since 2003 (Zhang et al., 2011). Coincidentally, housing prices have experienced

rapid rises in the coastal area, faster than the wage growth (See Fig. 1).

Are rising housing prices and wages the fruits of economic development, or are they the consequences of other factors, such as land use regulation? On one hand, rising wages driven by economic growth will push up housing prices through an increase of demand; on the other hand, rising housing prices that are a major cost of living in cities can also increase the nominal wage. Based on these two views, we can classify the reason for rising wages into two categories. The first is the outcome of enhanced labor productivity, which improves the welfare of workers and maintains economic growth. The other category is driven by high living costs in cities. The decreased inflow of the labor force and decreases in labor supply caused by rising living costs, such as housing prices, can lead to rising wages in cities which receive migrants. This will depress profits and cause factories to substitute labor with capital; more seriously, they may close or relocate somewhere with an abundant labor force. If rising wages are a result of land use policies, this may create the illusion of a disappearing comparative advantage in labor-intensive industries, which could lead to too early industrial upgrading and an excessive substitution of capital for labor. Therefore, it is fundamental to investigate the causes behind China's rising wages.

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* Corresponding author.

E-mail addresses: liangsuwenquan@163.com (W. Liang), luming1973@sjtu.edu.cn, lumingfd@gmail.com (M. Lu), zhanghangfd@163.com (H. Zhang).

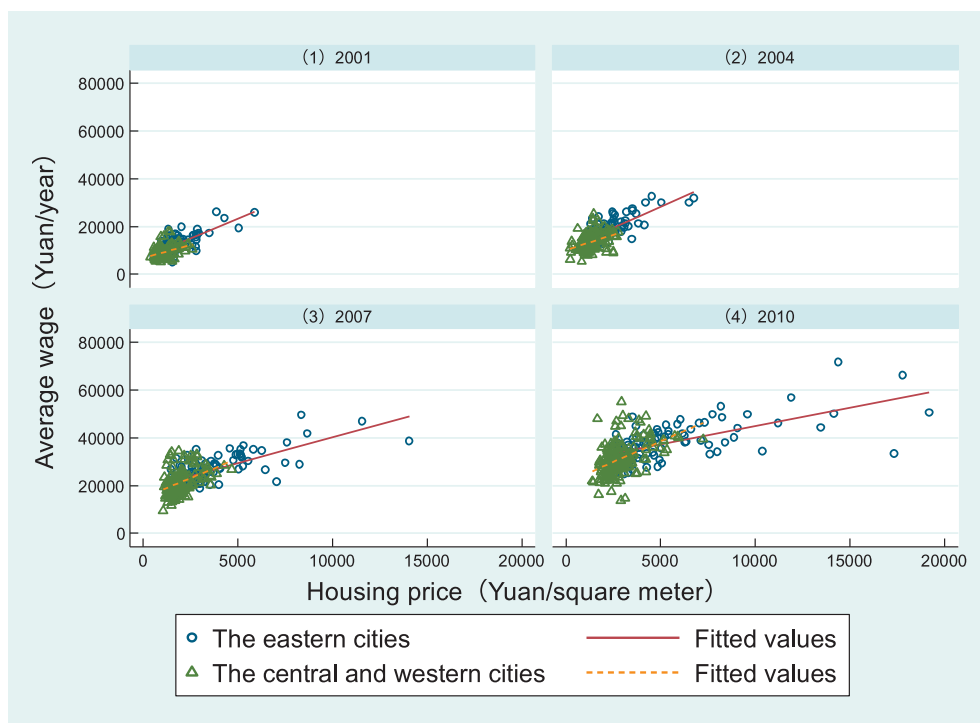


Fig. 1. Housing price and wage in the prefecture-level cities.
Source: Please refer to the fifth section of this paper.

According to the facts listed above, we argue that both the increase in housing prices and wages are not just a coincidence, but have a causal relationship behind them. Using the panel data of prefecture-level cities from 2001–2010, we have investigated how land policies have affected housing prices, which then resulted in rising wages. We find that the housing prices driven by restricting construction land use quotas in the eastern region have pushed up the wages. These results are robust in the samples near the border between the eastern and inland regions. We also find that the effect of housing prices on wages only exists in the eastern region that is receiving migrants, but also more strictly constrained by the construction land use quotas. The conclusion of our paper can be used to explain the rapid growth of wages in China, especially in the coastal region.

The remainder of the paper is organized as follows. Section 2 reviews the related literature regarding housing prices and wages. Section 4 constructs a simple theoretical model to guide the empirical analysis. Section 5 introduces the empirical model, the data and the identification methods. Section 6 reports the empirical results. Section 7 presents some robust checks. Section 8 concludes the study.

2. Literature review

Ever since 2003, along with China's policies of moving resources to the inland provinces, the TFP of firms has experienced lower growth, and resource reallocation efficiency (measured by the standard deviation of TFP) has also been undermined, especially true for firms located in inland cities (Lu and Xiang, 2016). Accompanying the decrease of the aggregate of land use quota supply since 2003, housing prices have also increased since 2003, especially in the eastern cities. Monetary policies, low interest rates, rising income and urbanization can lead to increasing housing prices (Chow and Niu, 2014; Shen, 2012; Zhang et al., 2012; Zhang, 2013). Additionally, decreases in construction land use quotas can result in higher costs of housing construction, embodied in

increased housing prices. However, all explanations have ignored the interregional differences between construction land use quotas between the eastern cities and the inland cities, and do not consider the effects on the labor market.

Our paper attempts to fill this gap by constructing a spatial equilibrium model to investigate how land policy has affected housing prices, causing effects on labor supplies and wages in the labor market. Our argument holds that the relative decrease of construction land use quotas in the cities receiving the immigration of labor has resulted in housing prices increasing, preventing the immigration of labor, consequently increasing wage rates. Similarly, CASS (2011) found that the rapid rise of land prices has depressed industrial development. Gao et al. (2012) also found that high housing prices in the eastern cities have resulted in a crowding-out effect on low value-added labor-intensive industries. Such an effect is not unique to China. Rabe and Taylor (2010) found that high living costs are behind decreasing labor supplies in Southeast England. Saks (2004) found that housing prices in cities with stricter land supply regulations experience higher growth rates, and then depress the inflow of the labor force. Unlike these studies, our paper firstly uses Chinese data to provide evidence of the spatial model based on the labor market and the housing market, and gives a reasonable explanation for the unusual rise in wages and housing costs.

Our study is also related to the literature exploring the effect of various land-use regulations. Using data of more than 100 Florida cities, Ihlanfeldt (2007) finds greater regulation restrictiveness results in the decrease of vacant land price. Similarly, Turner et al. (2014) also shows the land use regulation decreases land values substantially. But Zhou et al. (2008) gets an opposite conclusion based on a 1957 change to Chicago zoning. Secondly, there is also a large literature that focuses on the effect housing prices. Quigley and Raphael (2005) finds that the cities that have more stringent regulation of development and land use have lower price elasticity of supply and higher housing prices and rents based on

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