



# Income inequality and access to housing: Evidence from China<sup>☆</sup>



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## ABSTRACT

Economic theory suggests that income inequality predicts housing price and housing affordability for low-income households. Employing Chinese urban household survey data, this paper examines empirically the relationship between income inequality and access to housing for urban low-income households. The empirical results demonstrate that higher income inequality within cities is significantly related to a higher housing cost burden, a smaller per capita living space, and lower housing quality for low-income households. Further studies demonstrate that the negative impacts of income inequality could be moderated by product differentiation in housing markets, as a higher degree of differentiation in the size of housing units corresponds to a smaller effect of income inequality on housing affordability.

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## 1. Introduction

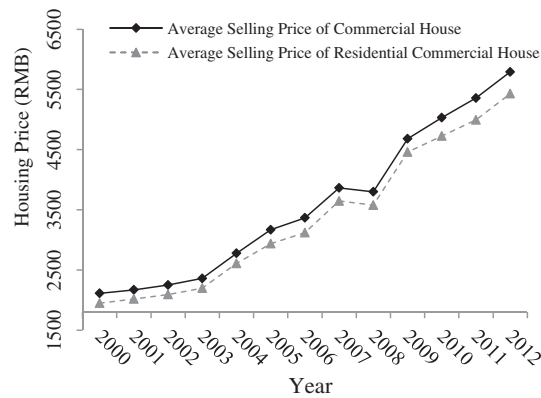
China's real estate industry has been developing rapidly since the reform of the monetization of the housing distribution in 1998.<sup>1</sup> As one consequence of the housing market reform, China's commercial housing price in urban areas increased dramatically during the period 2000–2012, particularly since 2004 (see Fig. 1). Increases in urban housing prices far outpaced the income growth of urban households and thus make housing unaffordable for many middle/low-income households. Households that live in small dwellings are now tagged by the Chinese news media as “city ants”. The prevalence of “city ants”, however, has not stopped the rise in housing prices. The deterioration in housing conditions experienced by low-income households and young people has given rise to complaints and social instability that will in turn hurt China's long-lasting development. How can housing prices continue soaring given many households cannot afford even a small house? Why can some households own more than one house while others live as “city ants”? This paper argues that rising income inequality is one important

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<sup>1</sup> Monetization of housing distribution is the beginning of the third stage of China's urban housing reform. China's urban housing reform initiated since 1978 was aimed to end the system of state provision of housing and establish a housing market. During the first stage of 1978–1988, some small-scale housing reforms including housing cost sharing among the state, enterprises and workers were piloted in several cities; during the second stage of 1989–1997, state-owned housing units are allowed to sell to workers; and in 1998, in-kind housing distribution system was entirely abolished and the old housing distribution system was transformed to a monetary and market-oriented one. The second stage reform is usually called the privatization of housing, which has been increasingly studied during recent years (for instance, see Wang, 2011 and Wang, 2012).



Source: Annual Statistic Data, 2013, NBS in China.

Fig. 1. Average housing prices: 2000–2012. Source: Annual Statistic Data, 2013, NBS in China.

driving force in China's urban housing price increase relative to household income and causes housing affordability problems for low-income urban households.

Fig. 2 presents the parallel trend of the urban housing-price-to-income ratio and Gini coefficient during the period 2002–2009, which demonstrates a clear correlation between housing prices relative to income and income inequality. Although the positive relationship between income inequality and housing-price-to-income ratio across time does not represent any causal effect, it does lead us to investigate whether the relative increase in income of wealthy households inflates urban housing prices and thus worsens the housing condition of the poor. Theoretically, it is easy to demonstrate that the increase in the income of wealthy households leads to higher housing prices and thus causes houses to be less affordable for low-income households in partial equilibrium. Similar to Matlack and Vigdor (2008), we can separate households into two groups: high-income households and low-income households, and depict the housing market as shown in Fig. 3. Panel A presents the housing demand of high-income households and the change of demand induced by income growth, presuming that housing is a normal good. Panel C displays the corresponding change of housing demand in the entire market. Given that the housing supply is inelastic to some degree, an increase in housing demand will result in a higher equilibrium housing price faced by all households. As a result, low-income households are now facing higher prices and experiencing low housing consumption, as shown in Panel B. Allowing for production differentiation or household heterogeneity in the housing market may lead to different predictions. For instance, if there are housing units of two different sizes, say big and small, and wealthy households prefer large houses to small ones, the increase in income of wealthy households may decrease market demand for small houses and thus cause prices to decline, assuming the supply of housing is somewhat inelastic. However, as shown in Matlack and Vigdor (2008), even without product differentiation, the theoretical predictions could be ambiguous in general equilibrium.<sup>2</sup>

Because of the theoretical ambiguity, whether income inequality causes worse housing conditions for low-income households in China is an empirical question. This paper aims to estimate empirically the relationship between income inequality and housing affordability for low-income urban households in China. Although it is not a novel idea that income inequality is associated with housing prices, there is little in the literature linking income inequality to access to housing for low-income households. Previous studies, including Rodda (1994); Quigley, Raphael, and Smolensky (2001), and Quigley and Raphael (2004) have shown a positive relationship between income inequality and housing price, but only Matlack and Vigdor (2008) formally discussed the relationship between income inequality and housing affordability for low-income renters and empirically tested it utilizing US data. This study not only provides complementary empirical evidence from a developing country on the association between income inequality and housing outcomes but also has important policy implications in China. The Chinese Prime Minister, Keqiang Li, has called for the acceleration of urbanization at various meetings, focusing on the renovation of old districts and improvement of housing conditions for middle/low-income households. Moreover, income inequality has been rising for more than two decades in China, and there has continually been an academic focus on its socioeconomic impacts. This study, by linking income inequality and access to housing by low-income households in China, will provide new insights on the determinants of housing conditions for low-income households and the socioeconomic impacts of income inequality. The findings in this paper will be of interest to scholars and policy-makers concerned with either income inequality or urban housing issues.

Employing Chinese urban household survey (UHS) data from 2002 to 2009, this paper examines the relation between income inequality and access to housing for low-income households from three dimensions: the housing cost burden, quantity of housing consumption and housing quality. Empirical results demonstrate that income inequality within cities is positively related to

<sup>2</sup> Matlack and Vigdor (2008) assume an asset A, say land, which can be transformed costlessly into housing. Both land and physical capital are employed in production, and a fraction of land is also utilized in consumption. Assuming only highly skilled (wealthy) individuals own land, the productivity increase of highly skilled individuals (and thus an increase in income inequality) could be offset by reductions in either the productivity of land or the productivity of physical capital. In the former case, the proportion of land used in consumption will increase and thus lead to an increase in housing consumption by low-skilled (poor) individuals.

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