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How does housing price affect consumption in China: Wealth effect or substitution effect?

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ABSTRACT

This study investigates the asymmetric effects of housing price on consumption in 35 major Chinese cities, having regard to heterogeneity of the housing and financial markets. Unlike previous studies, this study employs the threshold regression model in analyzing the two important effects: namely wealth effect and substitution effect. The findings suggest that both markets (and their status) are vital to explain the linkage between housing price and consumption. In particular, for the regime where the housing price-to-income ratio is below 5.0882 and the indicator of financial development is above 1.8827, the wealth effect is significant. By contrast, for the regime where the housing price-to-income ratio lies between 5.0882 and 5.9625, the substitution effect will become dominant. This study provides a better understanding of the thresholds and transmission channels through which housing price affects consumption. That is largely ignored in the existing literature. On the other hand, the study offers meaningful implications for policy makers in formulating relevant measures that transfers housing wealth into consumption, with a view to developing a healthier and more stable housing market and bolstering better economic development in China.

1. Introduction

Since the housing market reform in 1998, China's housing market has gone through a period of rapid development and housing prices have increased at an alarming speed. According to the data of National Bureau of Statistics of China, the average urban housing price rose from 2112 Yuan in 2000 to 6324 Yuan in 2014. Over the same period, another phenomenon which has drawn greater attention from both scholars and politicians is the continuous decline in consumption rate, from 46.9% in 2000 to 37.9% in 2014. By contrast, the country's consumption rate is much lower than the world's average level, i.e. 63.9% in 2014.[1] Given the sharp contrast in trends between consumption rate and housing price, some scholars raised a question: does the rise in housing prices suppress consumption? It is this essential question that motivates this study.

As a major component of household wealth, housing asset exerts a significant impact on consumption, which in turn drives the development of an economy (Hui, Ng, & Lau, 2011; Zhang, Li, Chen, & Li, 2016). Obviously, it is extremely important to have a deeper understanding of the effect of housing price on consumption and its transmission mechanisms, so scholars can have a better picture of the linkage between the real estate market and consumers' decisions and behaviors. Furthermore, with such knowledge, the Chinese government can enact more appropriate policies to strike a better balance between housing and consumer markets, with a view to achieving a more sustainable economic growth.

In academia, the effect of housing price on consumption has been widely discussed. The theoretical literature proposes some hypotheses on how consumption responds to fluctuation in housing prices. A rise in housing prices may boost consumption by increasing households' wealth or easing their credit constraint, which is called wealth effect; On the other hand, a rise in housing price can exert a negative effect on households' expenditure by increasing their cost of housing services and shrinking their budget, namely substitution effect. Among numerous studies, it is widely accepted that housing assets show wealth effects in developed countries. However, the results are quite mixed in China. The majority of Chinese scholars interested in this area find that housing price may suppress consumption, indicating housing assets show a substitution effect (Bussiere, Kalantzis, Lafarguette, & Sicular, 2013; Chamon & Prasad, 2010; Cheng & Huang, 2013).

Why do the studies based on China and developed countries show different results? Many scholars attempt to answer this question from different angles of view, including sex ratios, bequest motive, consumption habit, pension choice and ideas and so on (Wei & Zhang, 2009;

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[1] Consumption rate equals the ratio of total citizen consumption to GDP.

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Cheng & Huang, 2013; Li & Chen, 2014). Apart from the different cultural traditions and consumption concepts in China, there is another factor which has been ignored by Chinese scholars: that is market conditions. As China is going through rapid social and economic transformation, its market condition is largely different from that of developed countries. Specifically, China is facing regional disparities like uneven economic development and structure. In terms of finance and housing, regional differences are extremely obvious. In order to obtain a better political achievements, the local government in each region tries to reallocate capital from less productive regions to more productive ones systematically (Boyreau-Debray, 2003), leading to serious financial market segmentation and regional barriers. Moreover, due to heterogeneous labor mobility, economic development, real estate policy, people's expectation of future return and various other factors in different regions, there are huge differences in housing markets across cities in China (Liang & Gao, 2007; Gao, Chen, & Zou, 2012; Zhang et al., 2016).

Chinese scholars have already found evidence that the relation between housing price and consumption varies from region to region (Chen, Chen and Chou, 2010; Zang, Lv, & Warren, 2015). These phenomena raise one question: is it possible that the effect of housing price on consumption can be affected by the financial and housing markets in China? To address this problem, this study aims to explore the asymmetric effects of housing price on consumption, with emphasis on the heterogeneity of housing market situations and financial market liberalization. The study will investigate 35 major Chinese cities during the period of 2003 to 2014. Furthermore, instead of setting exogenous and self-constructed criteria to split the sample and do regression, we employ the threshold regression model to determine the sample partition criteria endogenously, which is much more objective and unbiased.

The remaining of the paper is set out as follows: Section 2 gives a brief literature review and discusses how the financial and housing markets affect the relationship between the housing price and consumption. Section 3 introduces basic model and data resources. Section 4 presents the empirical analysis and main findings. Finally, we draw a conclusion in Section 5.

2. Literature review and hypothesis development

2.1. Literature review

In academia, the effect of housing price on consumption is not fully understood. Traditionally, several hypotheses have been proposed to explain how the change in housing prices affects consumption. First, an increase in housing prices lead to an improvement in net housing wealth for house owners and then raise their consumption, which is called wealth effect. Previous studies have provided us two major reasons why house assets cause wealth effects. One of them is liquidity constraints: an increase in housing prices will result in a higher collateral wealth. This in turn leads to a relaxation of credit constraint, so it enables credit-constrained homeowners to consume more. Another reason is precautionary saving: a higher housing wealth will reduce households' need for precautionary savings and lead to an increase in consumption. On the other hand, substitution effects are also identified in previous literature. The rationale behind it is that when the housing price rises, the costs of purchasing and renting house will increase, so people need to save more and consume less to pay for the down payments and future loan repayments. Moreover, the interaction between housing price and consumption may be driven by some unobserved common factors like economic development, technological progress, etc. For example, technological progress facilitates the development of the economy, raise the income levels, and increase the housing demand and consumption simultaneously. In a nutshell, the effect of housing assets on consumption is ambiguous. The wealth effect of increasing housing wealth may be partly offset by the higher cost of housing services. Therefore, how consumption responds to the changes in housing price depends on the net effect of the foresaid mechanisms.

The results of empirical studies do not reach a consensus either. Some scholars support that housing assets have a wealth effect (Giuliodori, 2005; Bostic, Gabriel and Painter, 2009; Hui, Zheng, & Zuo, 2012). Others argue that an increase in housing prices will suppress households' demand on other goods (Sheiner, 1995; Attanasio, Blow, Hamilton, & Leicester, 2009; Li, Li, & Chen, 2014; Chen & Huang, 2013). With a deeper understanding of the mechanisms and improvement of data availability, recent studies have focused more on the asymmetric effects of housing price on consumption. Some scholars discover an interesting heterogeneity in the effect of housing wealth across different households' attributes, including age structure (Campbell & Cocco, 2007), credit constraint (Gan, 2010), income level (Khalifa, Seck, & Tobing, 2013), holding situation of family assets (Calcagno, Fornero, & Rossi, 2009), etc.

In academia, there is no doubt that market conditions affect housing price (Hui & Wang, 2014). Moreover, some scholars have already discussed the role of market condition in the relationship between housing price and consumption. For example, Catte, Girouard, Price, and André (2004) suggest that the marginal propensity to consume out of housing wealth is different from country to country due to various financial structures and home ownership rate. Browning, Gørtz, and Leth-Petersen (2013) find no significant effect of housing price on consumption before the financial reform in Denmark, but a significant housing wealth effect among younger households after the reform. Using a panel data of fourteen emerging economies, Peltonen, Sousa and Vansteenkiste (2012) argue that the housing wealth effect and financial wealth effect are related to development of the financial market.

Previous studies have offered significant insights for further studies. However, those scholars who explore the asymmetric effects of housing price on household expenditure focus mainly on how the intensity of the effect differs in terms of heterogeneity of households. Though some scholars have already discussed the role of the financial market, only a few of them notice the importance of the status of the housing market, especially in China. However, it is no doubt that the effect of housing price on consumption is closely related to the functioning of the housing market. Furthermore, the majority of studies that investigate the role of market condition use country-level data, which are subject to measurement errors. First, scholars may attribute the different effects of housing price on consumption to the degree of financial development of a certain country. Nevertheless, different results may be derived from various consumption concepts and cultural traditions among people in different countries, which can hardly be observed in the data sets. Thus, these unobserved characteristics may lead to problems like omitted variable bias. In order to fill in such knowledge gap, this paper aims to explore the asymmetric effects of housing price on consumption, having regard to heterogeneity of housing market situation and financial market liberalization in 35 major Chinese cities. As the regional barriers and capital market segmentation still exist in China, the mobility of capital is much lower within China than within countries that have integrated international financial markets. Thus, the current financial market situation of each city in China is quite different. It is this financial asymmetry that this study aims to look at. Not only can using city-level data capture the differences in regional financial markets, but it can also allow us to have a better control over unobserved characteristics among people across the nation. Second, there are many studies using the country-level data to estimate the elasticity of consumption to housing price, the differences in elasticity between countries, etc. Their studies may at best yield probable analytic results. Yet they have rarely explored what actually leads to the heterogeneous relationship between housing price and household expenditure. To address such underlying shortcomings and provide more objective and unbiased evidence, this study is distinct from traditional studies in two ways. First, we use threshold regression to determine sample partition criteria endogenously. Second, we investigate the effect of housing price on consumption across different regimes.