

The Impact of Urban Housing Purchase Restrictions on Real Estate Prices and Household Consumption: A Difference-in-Differences Approach

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Abstract:

This study investigates the impact of urban home purchase restriction policies implemented in China's real estate market in recent years on housing prices and household consumption, employing a difference-in-differences (DID) methodology. The study expands the interdisciplinary intersection of economics and sociology, enriching the empirical literature on this topic. Furthermore, the findings are translated into practical applications to enhance residents' quality of life through threefold value creation. The comprehensive empirical analysis yields the following conclusions: First, standalone home purchase restrictions failed to significantly reduce housing prices or consumer price levels in the short term within the treated cities. Second, a significant bidirectional positive correlation exists between housing prices and consumer prices. Overall, the interplay between the real estate market and the consumption market reveals notable inertia and lag in policy transmission effects. Consequently, policymakers must adopt more comprehensive policy combinations when regulating the real estate market and fully anticipate the lagging characteristics of policy impacts to achieve long-term stable development goals.

Keywords: Urban housing purchase restrictions; Real estate market; Household consumption behavior; Housing prices.

1. Introduction

In response to the overheating of China's real estate market in recent years, the central government has implemented macro-control policies featuring

"city-specific measures." Some cities have introduced home-buying restrictions to uphold the guiding principle that "real estate is for living, not speculation." Urban housing purchase restrictions have become a core policy tool in China's real estate regulation.

However, existing evaluations of their effectiveness have long focused primarily on their impact on suppressing housing prices, while largely overlooking their structural effects on household consumption. Current research tends to concentrate on housing prices themselves, neglecting their influence on household consumption behavior. Consequently, there exists a significant research gap concerning the relationship between urban purchase restrictions and household consumption. Given the current socio-economic realities and the state of existing research, this study employs a difference-in-differences (DID) approach to investigate the effects of urban housing purchase restrictions on both real estate prices and household consumption.

From a theoretical perspective, this research centers on a DID analysis of the dual impacts of urban housing purchase restrictions on real estate prices and household consumption. By leveraging the heterogeneity in the timing of restriction implementation across different cities and utilizing housing price and consumption data from relevant years, a multi-period DID model is employed to examine the substitution or crowding-out effects of purchase restrictions on housing price fluctuations, residential property expenditures, and expenditures on other consumer goods. This study expands the interdisciplinary intersection of economics and sociology and enriches the empirical literature in this field.

By analyzing the DID effects of urban housing purchase restrictions on real estate prices and household consumption, this research provides a clear understanding of the policy's influence on China's economic market. It aims to optimize relevant policies, identify the most effective intensity range of such measures, and reveal their impact on household consumption behavior. Furthermore, the findings are translated into practical applications to enhance the quality of life for residents, achieving tripartite value creation.

2. Literature References

2.1 Research on Real Estate Market Prices

The findings of Zhang Yishan, Sun Jiayi, and other scholars indicate that although property tax policies may temporarily slow the accumulation of household wealth, they can effectively curb regional housing prices in the long run. This reduction in housing wealth as a proportion of total household assets encourages greater expenditure on public services such as education, thereby increasing personal income and promoting household wealth accumulation. Over time, such policies help regulate income distribution and contribute to common prosperity [1]. Empirical research by Yan Jianye, Zhang Chao, and others demonstrates that bequest motives and potential

housing replacement demand significantly diminish the wealth effect of real estate. After controlling for these factors, the wealth effect of housing remains statistically significant. Households owning property exhibit a markedly suppressed wealth effect due to bequest motives and potential housing replacement needs, resulting in limited increases in consumption expenditure. Meanwhile, rising housing prices impose substantial financial pressures on non-homeowning households, potentially leading to significant consumption crowding-out effects [2]. Zhang Hao, Yi Xingjian, and other researchers argue that residential property assets exert a pronounced wealth effect on household consumption. Mortgage loans provide households with "leverage," amplifying the wealth effect when property values rise. Compared to single-home households, multi-home owners experience a more pronounced wealth effect. Additionally, households with a lower proportion of housing assets in their total portfolio exhibit a stronger wealth effect, which diminishes as the investment attributes of real estate decline and its consumption attributes increase [3]. Yu Xinsheng's study highlights that financialization exacerbates fluctuations in the real estate market and amplifies market risks. Therefore, implementing effective regulatory policies, balancing financial innovation with stability, and coordinating real estate market regulation with financialization are crucial measures for maintaining market stability [4]. Wang Zhuoyi's research reveals that economic growth has a significant positive impact on housing prices, while the supply of affordable housing exerts a negative moderating effect [5].

2.2 Research on Household Consumption Behavior

The findings of scholars like Chen Yuxin indicate that when housing prices decline, the wealth level of homeowners correspondingly decreases. This reduction in wealth may lead consumers to reduce their consumption expenditure [6]. Gu Zichen's research suggests that an increase in housing assets raises household consumption levels, improves consumption structure, and promotes consumption upgrading. A detailed breakdown of consumer goods categories reveals that housing assets exhibit a positive correlation with daily consumption, non-daily consumption, and durable goods consumption among households [7]. Zheng Xutao's study demonstrates that fluctuations in housing prices have both positive wealth effects and negative crowding-out effects on household consumption. The presence of these two effects is highly correlated with households' wealth levels, income levels, and debt levels. Specifically, housing price volatility generates wealth effects for high-income and high-wealth individuals, whereas it exerts crowding-out effects on low-income and low-wealth households. Notably, for

homebuyers with high debt levels, the crowding-out effect becomes more pronounced [8]. The research by Luo Jiahao and colleagues finds that housing wealth positively influences consumption expansion but negatively affects consumption upgrading. The positive impact of housing wealth on consumption expansion is more pronounced for urban households, multi-home households, families in regions with a highly developed real estate industry, and households in areas with a less developed financial sector. Conversely, the negative effect of housing wealth on consumption upgrading is more evident among rural households, single-home households, families in regions with a less developed real estate industry, and households in areas with a less developed financial sector. Further analysis reveals that housing wealth positively affects consumption upgrading under the moderating mechanism of the “wealth illusion” effect [9]. Zou Jing and other scholars’ research indicates that the financialization of real estate significantly suppresses household consumption. This conclusion remains robust after a series of stability tests. Mechanism analysis shows that real estate financialization inhibits household consumption by increasing the labor dependency ratio, reducing corporate innovation capacity, and hindering industrial structure upgrading. Further investigation reveals that the suppressive effect of real estate financialization is more pronounced in eastern regions and among urban residents [10].

3. Research Design and Empirical Analysis

3.1 Data Sources

The primary data for this study are sourced from the official website of the National Bureau of Statistics of China. The dataset includes the sales price indices of commercial residential properties and the consumer price indices (CPI) of urban residents in four major cities - Beijing, Shanghai, Guangzhou, and Shenzhen - for the periods before (2005-2009) and after (2010-2014) the implementation of urban housing purchase restriction policies.

3.2 Research Hypotheses

H1: Housing Price Suppression Effect

The purchase restriction policy, by curbing speculative demand, significantly reduces housing prices in the treatment group, thereby lowering the direct cost of home purchases for residents.

H2: Consumption Substitution Effect

The decline in housing prices releases savings previously allocated for home purchases, leading to increased expenditures on education, healthcare, and durable goods (as reflected in the rising subcomponents of the CPI).

H3: Consumption Crowding-Out Effect

The purchase restriction policy may induce a “wait-and-see” mentality, intensifying liquidity constraints and strengthening households’ savings motives.

3.3 Variable Specification

This study employs panel data from major Chinese cities spanning the period 2005–2014 to examine the impact of housing purchase restriction policies on housing price indices (HPI) and consumer price indices (CPI). The key variables are specified as follows:

3.3.1 Explained variable

Housing Price Index (HPI): Measures changes in urban housing prices.

Consumer Price Index (CPI): Reflects the cost of living for urban residents.

3.3.2 Explaining variable

Policy Dummy Variable (treat): Assigned a value of 1 for cities implementing housing purchase restrictions and 0 for non-restricted cities, including Beijing (BJ), Shanghai (SH), Guangzhou (GZ), Shenzhen (SZ), Luoyang (LY), Mianyang (MY), Lanzhou (LZ), and Nanchang (NC).

Policy Implementation Period Dummy Variable (post): Set to 1 for the period after policy implementation (i.e., January 2010 and thereafter) and 0 for the pre-implementation period.

Policy Effect Variable (did): The interaction term between the policy dummy variable and the policy implementation period dummy variable, used to capture the treatment effect of the policy.

Year Dummy Variables (y1-y9): Control for potential macroeconomic differences across years.

City Dummy Variables (city): Control for unobservable city-level factors.

3.4 Model Specification

This study employs the Difference-in-Differences (DID) model for analysis, with the following basic specifications:

3.4.1 Model 1 (Housing Price Model)

$$HPI_{it} = \alpha + \beta_1 \times did_{it} + \beta_2 \times CPI_{it} + \gamma \times Cityid_i + \delta \times Year_t + \varepsilon_{it}$$

(Equation 1.1)

In Equation 1.1, β_1 represents the core parameter of interest, capturing the net treatment effect of the purchase restriction policy on housing prices.

3.4.2 Model 2 (Consumption Model)

$$CPI_{it} = \alpha + \beta_1 \times did_{it} + \beta_2 \times HPI_{it} + \gamma \times Cityid_i + \delta \times Year_t + \varepsilon_{it}$$

(Equation 1.2)

In Equation 1.2, β_1 represents the core parameter of interest, capturing the net treatment effect of the purchase

restriction policy on consumption.

3.5 Parallel Trends Test

The parallel trends test is a critical prerequisite for applying the Difference-in-Differences (DID) method. As illustrated in Figure 1, which depicts the Housing Price Index (HPI) trends in this study, the housing price changes in both the treatment and control groups exhibited largely consistent trajectories before the implementation of the purchase restriction policy (2005-2009). The parallel

alignment of these trends supports the validity of the parallel trends assumption. Furthermore, this study employs an event study approach, conducting regression analyses for each month from 12 months prior to the policy implementation to 12 months afterward. The results indicate that none of the coefficients are statistically significant during the 12-month pre-policy period. This finding provides additional empirical evidence confirming the reasonableness of the parallel trends assumption.

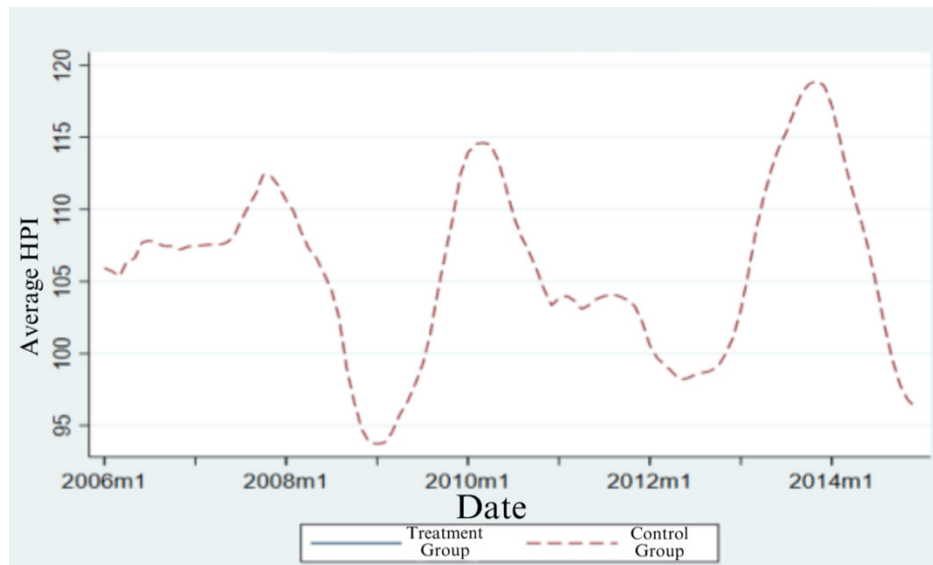


Fig. 1. Parallel Trends in HPI Before and After the Purchase Restriction Policy

The treatment group comprises four cities-Beijing, Shanghai, Guangzhou, and Shenzhen-that implemented home purchase restriction policies after 2010. The control group consists of other cities that did not impose such restrictions during the same period.

3.6 Empirical Results Analysis

3.6.1 Housing Price Model (HPI)

The regression results indicate that the DID coefficient was automatically dropped due to multicollinearity, suggesting that after controlling for city fixed effects, year fixed effects, and CPI variables, the purchase restriction policy did not exert a statistically significant additional impact on housing prices in the treatment cities in the short term. This finding contradicts Hypothesis H1, implying that the policy's direct suppressive effect on housing

prices was not evident during the study period.

Notably, CPI exhibited a significant positive influence on HPI ($\beta = 0.926$, $p < 0.05$), which aligns with economic reality-rising consumer prices tend to elevate asset price expectations in the real estate market.

3.6.2 Consumer Price Index (CPI)

As shown in Figure 1, the DID coefficient in the consumption model was also dropped due to multicollinearity. This indicates that the purchase restriction policy did not directly and significantly reduce consumer price levels during the study period, failing to support Hypothesis H2. However, the regression results show a significant positive relationship between HPI and CPI ($\beta = 0.052$, $p < 0.01$), suggesting that rising housing prices drive overall consumer price increases through wealth effects or cost transmission channels. This finding is consistent with Hypothesis H3.

Table 1. The Impact of Home Purchase Restrictions on Housing Prices and Consumption

	(1)	(2)
	hpi	cpi
did	0.000	0.000
	(.)	(.)
cpi	0.926*	
	(0.294)	
hpi		0.052**
		(0.010)
Observations	540	540

Standard errors in parentheses

* $p < .05$, ** $p < .01$

3.7 Policy Background and Interpretation

Between 2005 and 2014, China's real estate market underwent a rapid expansion phase, particularly accelerating after the government's economic stimulus policies in the wake of the 2008 financial crisis. Although the government implemented home purchase restriction measures starting in 2010 to curb the overheated market, the inertial upward trend of housing prices and rigid demand meant that the short-term effects of these policies were not immediately apparent.

While the primary objective of home purchase restrictions was to suppress housing price increases, their practical implementation encountered significant policy hedging behaviors. For instance, capital flowed to non-restricted cities, or alternative financial channels were utilized to circumvent the regulatory constraints. Moreover, the restrictions failed to significantly reduce overall urban consumption price levels in the short term. This was because fluctuations in consumer prices are influenced by numerous macroeconomic factors, and policy effects typically exhibit a certain degree of lag.

4. Conclusions

This study conducts an empirical investigation into the impact of urban housing purchase restriction policies on real estate prices and consumer price levels, followed by an analysis of the empirical results. Based on the empirical findings and current social realities, it proposes policy recommendations to stimulate household consumption and regulate real estate prices in China, while also exploring future research directions.

First, standalone housing purchase restriction policies fail to significantly reduce housing prices or consumer price levels in the short term. Hypotheses H1 and H2 are not supported within this timeframe.

Second, there exists a significant bidirectional positive

correlation between housing prices and consumer prices, providing strong empirical support for Hypothesis H3.

Overall, the interplay between the real estate market and the consumer market reveals notable inertia and lag in policy transmission effects. Consequently, policymakers must adopt more comprehensive policy combinations when regulating the real estate market and fully account for the lagging characteristics of policy impacts to achieve long-term stable development.

This study examines changes in real estate prices and household consumption behavior before and after the implementation of China's urban housing purchase restriction policies. However, due to data availability constraints and research methodology limitations, it does not delve into micro-level data analysis. Based on the current research status, the following future research directions are proposed: First, micro-level data could be employed to examine the heterogeneity across different wealth groups, investigating how real estate price fluctuations affect consumption behavior across varying income levels. This could involve data collection through surveys and questionnaires. Second, the study of policy synergy effects could be expanded by incorporating other related policies, such as credit regulation mechanisms and new land transfer regulations, to conduct more comprehensive and integrated research on the real estate industry.

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