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The Impact of the 2010 Housing Purchase Restriction on Commercial Housing Prices in Beijing: A Difference-in-Differences Analysis

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Abstract:

This paper examines the impact of the 2010 housing purchase restrictions on Beijing's commercial housing prices. The data are monthly from January 2009 to December 2010. A Differences-in-Differences model is employed, with Wuxi serving as the control city. The aim of this study is to determine whether the policy helped to cool down the housing market. The results show that, instead of falling, Beijing's commercial housing prices increased after the policy. This may be because many people rushed to buy homes before stricter rules took effect, local families were still allowed to purchase more than one property, and the policy signaled that housing would become more limited and valuable. The study suggests that purchase restrictions alone are not enough to control prices; they should be combined with financial tools, such as higher down payments or different mortgage rates, along with supply-side reforms and city-specific policies. The case of Beijing demonstrates that housing policies can lead to unexpected outcomes, highlighting the need for careful design to improve their effectiveness.

Keywords: Housing purchase restriction. Commercial housing price. Difference-in-differences. China.

1. Introduction

This study analyzes the effect of the 2010 housing purchase restriction policy on Beijing's housing prices. Real estate has long been a vital industry in China, acting as a key driver of economic growth and a main channel for household investments and wealth preservation. The introduction of the "purchase restriction" policy marked a turning point in China's housing regulations. In April 2010, amid rapidly increasing housing prices, Beijing issued the "Guidelines for Implementing the State Council's Notice". Starting May 1, 2010, each household was limited to buying one new commercial residential property, and only local households were allowed to purchase new residential properties if they already owned one. This was China's first housing purchase restriction

measure, aimed at reducing speculative demand and stabilizing the overheated market. This paper first reviews existing studies on China's real estate market, covering both broad research on housing policies and specific findings related to Beijing. Then, the analysis focuses on Beijing's housing prices using a Difference-in-Differences (DID) approach, with Wuxi serving as the comparison city. By integrating existing research with the findings from this study, the analysis seeks to enhance understanding of how policy interventions influence housing market prices in Beijing.

2. Literature Review

The housing purchase restriction policy can influence housing prices through both demand and supply channels. On the demand side, limiting the number of homes a household can buy reduces speculative demand and may slow down price growth. However, because purchase rights become scarce, buyers may value them more, which could even raise prices in certain parts of the market. Deng, Gyourko, and Wu find that land values are closely tied to housing prices in China, demonstrating how demand shocks can quickly lead to higher prices [1]. On the supply side, developers facing weaker sales may cut prices or change construction plans to reduce holding costs, resulting in lower prices in the short term. Conversely, fewer transactions and tighter liquidity may also discourage new supply and raise costs for sellers, potentially keeping prices high. Fang, Gu, Xiong, and Zhou argue that government policies and credit conditions strongly shape buyer expectations, and restrictive measures may even generate more short-term demand instead of reducing it [2]. These mixed effects mean the overall impact of HPR on housing prices remains uncertain, with past studies showing both positive and negative outcomes.

China's housing market has experienced a major expansion since the early 2000s, becoming a key driver of both economic growth and household wealth. Glaeser, Huang, Ma, and Shleifer describe this as "a real estate boom with Chinese characteristics," noting not only rapid price increases but also huge construction and unusually high vacancy rates, influenced by the government's central role in land supply and credit distribution [3]. Building on this, Wu, Deng, and Gyourko present evidence from 35 major cities showing that housing prices and land values rose at an unprecedented pace after 2007, with Beijing's land prices nearly eight times higher by 2010 [4]. Their findings indicate that expectations of continued capital gains, rather than actual fundamentals, largely supported the boom. Complementing these micro-level insights, Chivakul, Lam, Liu, Maliszewski, and Schipke take a broader macroeconomic view take a broader macroeconomic view, showing that by 2014, real estate investment made up about 15 percent of GDP, while also warning that oversupply, especially in smaller cities, could lead to a long and tough market adjustment [5].

Together, these studies demonstrate that China's housing market was fueled by strong demand, rapid urban growth, and active government backing, but also faced structural risks like affordability issues and excess inventories. This overall context is essential for understanding the policy responses that followed.

Building on the broader trend of rising housing prices, many studies have examined the effects of the 2010 housing purchase restriction policy as one of China's most direct regulatory interventions. Wu and Li use a difference-in-differences approach across 97 cities and find that HPR significantly lowered housing prices and transaction volumes, especially in first- and second-tier cities, while having limited impact on construction and investment [6]. More recent work by Zheng, Zhang, and Wu adopts a new approach by analyzing judicial housing auctions, which were exempt from HPR, to assess the implicit value of purchase eligibility [7]. They estimate that buyers were willing to pay about a 22% premium for this qualification, showing how restrictive policies created a market for eligibility itself. Complementing these insights, Lu, Zhang, and Hong use a structural model with data from five large cities, demonstrating that HPR decreased overall demand and made it less responsive to price changes. Meanwhile, developers, facing higher holding costs, were willing to lower prices and sell more quickly [8]. Their counterfactual analysis also suggests alternative policy designs could yield better welfare outcomes.

Several studies have closely examined Beijing, the first city to implement the housing purchase restriction policy. Sun, Zheng, Geltner, and Wang analyze transaction data and find that resale housing prices dropped by 17–24%, and sales volumes fell by more than half, while rents remained relatively stable [9]. This indicates that the policy reduced speculative demand, as the price-to-rent ratio also decreased by about a quarter. Zheng, Zhang, and Wu investigate judicial housing auctions, which were not affected by the policy, and find that auction prices were nearly 19% higher, suggesting buyers valued purchase eligibility at approximately a 22% premium [7]. This implies that the right to buy a home itself became scarce and more valuable in Beijing. Yang examines broader economic effects and discovers that, while the policy initially reduced investment and consumption, it later helped stabilize the market, reallocate resources to new industries, and support suburban growth [10].

Overall, these studies indicate that Beijing's purchase restriction policy quickly cooled the market and shaped buyer behavior. Past research has pointed to lower resale prices, fewer transactions, and new distortions such as the value of purchase eligibility. But most of these studies

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combine different outcomes or focus on broad economic effects. This paper takes a narrower approach by examining only how the 2010 policy affected commercial housing prices in Beijing. Using a Difference-in-Differences (DID) method with Wuxi as the comparison city, the following sections will explain the research design, present the results, and discuss their implications.

3. Method and Result

To evaluate the impact of the 2010 housing purchase restriction policy on Beijing's housing prices, this study employs a Difference-in-Differences (DID) model with monthly panel data from January 2009 to January 2011. Beijing serves as the treatment group, as the restriction began in May 2010, while Wuxi acts as the control group because its restriction was enforced later.

The dependent variable is the new home price index (YoY = 100). To account for inflation and macroeconomic factors, the Consumer Price Index (CPI) is included as a control variable. For Beijing, the city CPI is used directly, while for Wuxi, the provincial CPI of Jiangsu acts as a proxy due to data limitations. The regression equation is:

$$Price_{it} = \alpha + \beta\left(Beijing_i \times Post_t\right) + \gamma CPI_{it} + \mu_i + \lambda_t + \epsilon_{it} \#(1)$$

where Price_it is the housing price index for city i in month t, Beijing_i equals one if the city is Beijing and zero if it is Wuxi. Post_t equals 1 for months after May 2010, and the interaction term Beijing_i × Post_t captures the treatment effect. μ_i are city fixed effects, and λ_t are time fixed effects.

The data used in this study were obtained from the official website of the National Bureau of Statistics of China (NBS), specifically from the National Data online database (https://data.stats.gov.cn). After downloading the original files from the National Bureau of Statistics of China, the dataset was cleaned and processed to focus on the variables needed for the analysis. The dataset includes the monthly new commercial housing price index for Beijing and Wuxi, as well as the Consumer Price Index (CPI) for both regions. Since city-level CPI data for Wuxi are not available, the provincial CPI of Jiangsu was used as a proxy, while Beijing's CPI was taken directly from municipal statistics. The final dataset is structured as a city–month panel covering the period from January 2009 to January 2011.

Table 1. DID regression results

Dependent Var:	New home price index yoy 100
CPI(YoY=100)	-1.055***
	(0.000)
Treat * Post	5.761***
	(0.000)
Fixed Effects	City, Date
Clustered	City
Observations	48
R2	0.944
Within R2	0.622
Significant. Codes:	"***"0.001 "**"0.01 "*"0.05

Table 1 presents the main DID regression results. After controlling for CPI and including city and time fixed effects, the interaction term treat × post is positive and statistically significant at the 1% level. The estimated coefficient of 5.761 indicates that the introduction of the housing purchase restriction policy in May 2010 is associated with an increase in Beijing's new commercial housing price index compared to Wuxi. This suggests that, contrary to the policy's intended goal of cooling the market, housing prices in Beijing rose sharply after the restriction was enforced.

The control variable CPI is also significant, with a negative coefficient of –1.055. This suggests that, after adjusting for inflation, the relative price increase in Beijing remains substantial. The overall explanatory power of the model is high, with an R-squared value of 0.94, indicating that the model effectively explains most of the variation in housing price trends during the sample period.

4. Discussion

Contrary to the policy's original aim of cooling the housing market, the regression results show that Beijing's

housing prices increased significantly after the 2010 purchase restriction was introduced. This unexpected result can be explained in several ways. First, the policy may have stimulated short-term demand rather than suppressed it. Households still qualifying for the restriction, expecting stricter rules in the future, rushed to buy homes before losing their eligibility, leading to a spike in transactions that pushed prices higher. Second, the restriction's design gave local households more flexibility, as families that already owned one property could still purchase an additional unit. This relatively lenient policy for residents may have encouraged immediate buying. Overall, these factors suggest that, in the short run, the HPR policy may have triggered a "panic buying" effect, boosting speculative demand instead of reducing it. While the long-term effects might differ, Beijing's short-term response illustrates how restrictive policies can sometimes provoke unintended behaviors that temporarily increase prices, undermining the policy's original goal.

Another possible explanation is the role of expectations and policy signaling. The introduction of the purchase restriction was widely reported and portrayed as a decisive government intervention to cool the housing market. Instead of reducing demand, this signal may have increased fears of even stricter measures being next. Households that remained eligible saw the restriction as a "last chance" to enter the market, prompting them to buy more quickly. This type of anticipatory behavior can easily push prices up in the short term, especially in a city like Beijing, where housing is viewed as a safe investment and a store of wealth. Additionally, since residents were allowed to buy a second unit, the policy mainly targeted outsiders rather than insiders. This uneven approach may have reinforced the idea that owning property in Beijing was becoming more exclusive, which in turn increased its perceived value. Overall, the rise in demand from precautionary buying, combined with limited supply adjustments, offers a plausible explanation for the immediate price increases following the implementation of the restriction.

5. Recommendations

The findings show that housing purchase restrictions, although intended to reduce speculative demand, can have unintended short-term effects. In Beijing, the policy caused a price increase, likely due to precautionary buying and the perception that eligibility had become limited. This indicates that such restrictions should be combined with financial measures, like higher down payments or varied mortgage rates for second-home buyers, to target speculation without causing panic buying. The policy design should also be more balanced; allowing local households to buy more properties while restricting non-locals might create loopholes and reinforce exclusivity, which can raise prices. Furthermore, demand-side limits alone are insufficient; supply-side reforms are necessary to reduce dependence on land sales and increase rental housing, promoting long-term stability. Lastly, policies need to reflect local conditions, as Beijing's market dynamics differ greatly from those of smaller cities, and uniform restrictions could lead to inefficiency. Differentiated policies that address local demand pressures and affordability issues are more likely to succeed.

6. Conclusion

This study examined the effect of the 2010 housing purchase restriction on Beijing's housing prices using a Difference-in-Differences model with Wuxi as the control city. The results show that instead of lowering prices, the policy was followed by an apparent increase in Beijing's housing price index. One likely reason is that buyers rushed to enter the market before additional restrictions could be imposed, and local households still had room to purchase more homes, which boosted demand in the short term. These findings suggest that housing purchase restrictions may not work as expected when used alone. While the policy aimed to cool speculative demand, it also created new incentives for precautionary buying and underscored the importance of purchase eligibility. To achieve more stable outcomes, restrictions should be combined with financial tools, supply-side reforms, and city-specific measures. Overall, the case of Beijing shows that housing policies can have complex and sometimes unintended effects, and thoughtful design is needed to balance short-term reactions with long-term goals.

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