The Impact of Shopping Malls on Surrounding Housing Prices: Evidence from Beijing, China

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Abstract. This study investigates the impact of shopping malls on the price of residential housing in the neighborhood, focusing on how the distance of shopping malls to residential housing affects the price of housing. This study uses statistical regression analysis via STATA 17 data from six selected urban districts and finds that housing prices of neighborhoods with higher accessibility to shopping malls and convenience stores improve significantly. The findings reveal that proximity to shopping centers significantly increases housing values, with homes closer to these centers becoming more expensive, primarily due to increased accessibility and improved amenities. It was also established that the quality of school districts has a significant effect on House prices, especially in high-demand income areas. Subsequently, neighborhoods in top-ranked districts possess higher prices because of the value that families attribute to educational assets. Further studies should generalize the research area, use wider sets of control variables, and make use of long-run models to reflect the dynamic tendencies of housing price changes.

Keywords: Shopping malls, housing prices, school rank, house age, distance

1. Introduction

Home buyers are now considering multiple factors when choosing a property, all of which contribute to a better quality of life. In addition to the type of house and the neighborhood environment, the availability of neighboring amenities has become one factor. Such are school, employment opportunities, and healthcare [1]. Accessibility of good schools is vital for families with young children, while accessibility to a place of work shortens working hours and expenses on transportation. Also, the accessibility of shopping centers has a great influence on purchase decisions.

Sources of retailing facilities such as shopping centers are easily accessible, hence, meet the needs of demand and supply of goods and services; buyers hence prefer to live close to such centers [2]. This can lead to fluctuating premiums within the housing prices adjacent to the shopping center. Hence, in China, the new shopping center and residential buildings are being sold coupled together; hence, buyers are now paying much attention to whether the house they are buying is announced to be in proximity to a shopping center.

The rapid urbanization and modernization of Beijing and globalization come with new changes in the business environment. The malls have now become a complex component of the lifestyle in the

world's cities and play an important role in enhancing the conveniences and economic growth of the cities. The increasing number of shopping centers has led to a rise in house prices in the surrounding areas. As the cultural, economic, and political center of China, Beijing's real estate market has distinct characteristics and significance, drawing wide attention from society [3]. In the context of frequent real estate regulatory policies, shopping centers not only provide important support for commercial real estate and the urban economy but also enhance their influence on housing prices by improving the regional environment and driving consumption, making them particularly important in urban development.

This paper aims to analyze the mechanism of influence of Beijing shopping centers on the housing prices in the surrounding areas. Specifically, the research directions of this paper mainly include:

1. Identify the factors that influence the prices of Beijing shopping centers in relation to the surrounding housing prices.

2. Explore the differential impact of shopping centers on housing prices in different regions.

3. Provide policy suggestions on housing price regulation and urban planning.

This paper discusses the effect of shopping centre on surrounding housing prices, contributing to the theoretical research on housing price determinants. Despite the importance of shopping centre in commercial development, their impact on housing prices has not been fully explored. This analysis, using a Beijing shopping centre as an example, aims to fill this research gap and provide data and academic references for future studies. Besides, the research findings can offer valuable insights for real estate investors, enabling them to assess the investment potential of housing prices in different areas. Additionally, the results can guide urban planners and policymakers in optimizing city commercial layouts and promoting sustainable real estate development. Furthermore, the study can inform government housing price regulations and provide input for urban planning decisions.

2. Literature review

In China, shopping malls have evolved into multifunctional hubs that elevate housing prices through improved amenities and accessibility [4]. Proximity to large malls correlates with higher property values, as they enhance neighborhood appeal with retail, entertainment, and infrastructure [5]. However, this effect weakens with distance due to the spatial decay of commercial spillovers [6]. Unique to China is the integration of malls with urban planning, such as transit-oriented developments in Beijing, which amplify their impact on housing demand [1]. International studies note similar trends, though China's government-led urbanization intensifies the mall-housing price linkage [3].

From Gruen's [7] original concept to ICSC's [8] contemporary classifications, malls now serve as multifunctional social hubs [9]. The Classification of Shopping Centers can be traced back to 1966, when William Applebaum divided shopping centers into three categories in his Guide for Classification of Shopping Centers: Neighborhood Centre, Community Centre, and Regional Centre. In 1979, McGoldrick classified shopping centers according to their functions in Retailing. Mainly based on its functions, scale, geographical location, and market goals, he emphasizes how shopping centers can meet the needs of different consumers and their positioning in the retail environment. Clifford, in The Retail Environment, proposed a more detailed classification system for shopping malls; these include Retail Parks, Theme Centers, and Super Regional Centers. These new types reflect the growing scale of shopping centers and their multi-functional trend. "Hines has classified shopping malls into six categories such as neighborhood center, community center, specialty center, regional center, super regional center, hypermarket, neighborhood center, community center,

regional center, super regional center, power center, lifestyle center, retail podium/plaza, hypermarket center, niche/destination retail center and CBD center." [10].

Domestic scholars have extensively studied shopping centres, including the spatial study of shopping centres. For example, The Impact of Customer Shopping Duration on Cross-Shopping Behavior in Shopping Malls: A Theoretical Model [11], A theoretical model was proposed to analyse the impact of shopping time on shoppers' consumption behaviour and how factors such as mall layout, store diversity, and customer traffic affect consumer behaviour were discussed. Environmental research on sustainable development of Shopping centres, such as "Transformation and Sustainable Development of Shopping Centers: Case of Czech and Slovak Cities:" [9]. This article focuses on the sustainable performance of retail transformation and shopping centre site selection and construction. Shopping centres have been classified based on their origin, location in the city, and total rentable area. Scholars at home and abroad almost take into account the factors of consumer psychology and consumer behaviour when studying shopping centres. For example, A Literature Review of the Research on Consumer Behaviour in shopping malls [11] shows that consumer behaviour in shopping malls is affected by various factors. Including environmental factors, brand choice, and consumption motivation. Many domestic scholars have also conducted research on shopping centers in individual cities, such as Zhang and Wu, who have discussed the evolution of time and space of shopping centers in Guangzhou [4]. Studies by foreign scholars have also explored the role of shopping centres as places of social interaction, believing that shopping centres are not only places for shopping but also important places for social and cultural exchanges, thus contributing to urban development [3]. At the economic level, the research focuses on the role of shopping centres in promoting regional economic development, analysing how shopping centres promote the increase of local employment and business activities. These studies are often analysed in combination with economic models and empirical data. The study also explores how malls serve a cultural function by providing space for a variety of social interactions. They can be seen as cultural melting POTS that reflect and influence local customs and lifestyles [1]. Consumers will consider many factors when choosing a shopping center. The author develops a suggested model of shopping center selection by conducting a questionnaire [12].

In this research project, this paper studies the relationship between shopping centres' presence and housing prices in nearby areas. The focus is on analysing how shopping centres impact residential property values in different neighbourhoods across Beijing. Shopping malls are important for providing consumers with a wide range of products and services, including everyday essentials, entertainment options, and dining experiences. Their presence offers great convenience to consumers. As a result, the proximity of a shopping centre has become an important factor for many potential homebuyers when assessing potential properties.

There are various mechanisms for shopping centres to affect housing prices. Shopping centres can improve the economic strength of the surrounding area because they can provide public services for residents, attract people, and naturally promote economic development, thus increasing housing prices. It provides convenience for residents and optimizes urban transportation and traffic. Although domestic and foreign scholars have conducted a large number of studies on the influencing factors of housing prices, most of them focus on the status quo of cities in Western countries, and there is still a lack of research types on cities such as Beijing under the background of rapid urbanization development in China. The presence of relevant existing studies also reflects that the studies on some factors are not comprehensive. Therefore, this paper discusses the influence mechanism of Beijing shopping centres on the surrounding housing prices and puts forward the following research hypotheses:

Hypothesis 1: Shopping malls positively impact the surrounding housing prices. The closer a home is to a shopping centre, the higher the price.

Hypothesis 2: Housing prices near shopping centres in districts with higher school district rankings are higher.

3. Methodology

According to the theoretical analysis and research purpose of this paper, the basic model selected is as follows. The metering tool used is STATA17. This study uses a continuous distance variable (distance) instead of a binary indicator (e.g., whether a property falls within a commercial zone) to analyze shopping centers' impact on housing prices, based on two key reasons. First, the value of commercial amenities (e.g., convenience, foot traffic) generally decreases with distance. Second, a binary approach cannot capture this gradient effect and may introduce bias from arbitrary threshold selection. Furthermore, shopping centers' influence has a limited effective range, beyond which their positive effects diminish or even become negative. Thus, the continuous distance measure provides more accurate spatial analysis of the impact of commercial amenities.

$$price_i = \alpha_0 + \alpha_1 distance_i + \alpha_2 controls + \varepsilon_i$$

Dependent variable, $price_i$ represents the average price per square meter of houses sold in the community i. α_0 represents individual effects, representing influencing factors that do not change over time; independent variable, $distance_i$ represents distance between shopping center and surrounding residential areas; α_1 represents parameters to be estimated, representing the marginal influence of distance on house price; $controls$ are a set of control variables that can eliminate or reduce unconsidered sources of variation, thus improving the explanatory ability and fore casting accuracy of the model. Control variables include age and school rank. The error term ε_i represents the effect of other factors on the price that the model fails to take into account and is usually assumed to be a random error.

The explained variable in this paper is the price of a one-bedroom apartment with an area of about 60 square meters in a residential area near shopping centres in six districts of Beijing (price). The source of this value is based on the average price of online second-hand platforms such as Lianjia and Kauri.

This paper selects six urban areas in Beijing, and the two neighbourhoods around the two shopping centres in each district total 36 neighbourhoods, which are about 7 Kilometres away from the shopping centre. The explanatory variable in this paper is the distance between a shopping centre and a one-bedroom house of about 60 square meters in a nearby community (distance). The source of this data is based on multiple distance measurements of Baidu Map, Amap, and Google Maps, taking the average distance between the entrance of the shopping mall and the entrance of the residential area. At the same time, when the mall and the residential area have multiple entrances, the average is taken.

The research model of this paper mainly involves two control variables, age and district. Regarding the calculation of the age of the house, the network only introduces the completion of the house and does not account for the direct age of the house. Secondly, there are also houses built in different periods of time in the same community. Therefore, when calculating the age of houses, this study calculated the average of the years when houses were built in the same community and then deducted the average of the years when houses were built by the year 2024. The school district data

was collected through the school districts corresponding to different schools in the 2024 Beijing Primary and Secondary School rankings published on the Yuloo website.

4. Result discussion

The spatial scope of the research model in this paper is limited to six Beijing districts, Haidian District, Xicheng District, Dongcheng District, Chaoyang District, Daxing District, and Changping District. These six regions have relatively concentrated populations, economic activities, and educational resources and are located in relatively famous, typical large shopping centres. These six districts are not typical six urban districts in Beijing, but the reason why these six districts are selected as the spatial scope of the study is that Haidian District, Chaoyang District, Dongcheng District, and Xicheng District are the four districts that are more closely concentrated in the center of Beijing and have higher prosperity, while Daxing District and Changping District are relatively far away and slightly lower prosperity than the other four districts. These six districts can represent the data situation well in different distributions in Beijing and provide better general response results. More remote areas, such as Huairou District and Fangshan District, are not included in the spatial scope of this study because they have few shopping centre and are not representative, and their population and economic activities, including educational resources, are not concentrated.

This study chose to focus on second-hand houses with one bedroom and one living room, covering an area of approximately 60 square meters, for several reasons. The second-hand housing market is generally more established than the primary housing market, leading to more frequent transactions and a larger volume of data. This provides a robust and statistically significant sample for the study. Additionally, collecting and processing second-hand housing data is relatively cost-effective, especially when obtained through open channels and online platforms. In contrast, obtaining first-hand data is more expensive due to privacy concerns and limitations, making research feasibility lower. Besides, the choice of an area of about 60 square meters of one-bedroom living room housing because 60 square meters of bedroom living room is a more common residential type, especially in the city centre and the surrounding area of residential housing. This allows this type of home to represent the housing needs and market trends of the average family. Moreover, this unit is usually suitable for single people, small families, or young couples and covers different socio-economic groups so that it can reflect diverse living needs. Houses of about 60 square meters are usually moderately priced and fit the purchase budget of middle-income families and young buyers, so there is more data to choose from.

When selecting two shopping centre in each district, this study selects shopping centre with more typical and large traffic flow, and such data is more representative.

The housing price data of three neighbourhoods around two shopping centres in each of the six urban districts of Beijing in 2024 were selected. The required data mainly comes from Lianjia network and Yulu website. This chapter will introduce Statistical Description, Line Chart Analysis, and Regression Results & Hypothesis Testing.

Table 1. Descriptive statistics

Variable	Obs	Mean	Std. Dev.	Min	Max
rank	36	3.5	1.732	1	6
$distance_i$	36	1.856	1.287	.5	7
$price_i$	36	8.154	3.530	3	17
age	36	22.083	11.975	4	44

Table 1 displays the descriptive statistics of the variable as was used in the analysis. The average price of housing in the selected neighbourhoods around shopping malls was 81,540 yuan per square meter but varies across districts. The smallest price noted was 31,333 yuan in Changping District and the highest 105,333 yuan was in Xicheng District.

The average value of the school rank variable was, therefore, 3.5 which suggests that there are moderate differences in the quality of education provided in different districts. Houses averaged 22 years in age, but age ranged from 4 to newly constructed to structures 44 years old. These variations imply that access to malls and higher-ranked schools can be a leading factor in housing prices, and this will be examined in further analyses.

Table 2. Linear regression of housing price and distance

price	Coef.	St.Err.	t-value	p-value	[95% Conf	Interval]	Sig
lndis	-.331	.092	-3.59	.003	-.529	-.133	***
age	.012	.005	2.30	.037	.001	.023	**
rank	-.341	.045	-7.56	0	-.438	-.244	***
Constant	14.66	.829	17.68	0	12.882	16.438	***

*** p<.01, ** p<.05, * p<.1

In Table 2, the coefficient of lndis is -0.331, which means that when other variables remain unchanged, the house price will decrease by 0.331 units on average for each unit increase in distance. The p-value was 0.003, and the significance level was *** ($p < 0.01$), indicating that the result was significant at the significance level of 1%. The T-value of -3.59 further supports the significant impact of this variable on house prices. There is a significant negative correlation between distance and house prices, i.e., as distance increases (which may refer to the distance from the city center or other major facilities), house prices decrease significantly.

Table 3. Linear regression of low-price housing groupings

price	Coef.	St.Err.	t-value	p-value	[95% Conf	Interval]	Sig
lndis	-.112	.05	-2.22	.044	-.22	-.004	**
age	0	.004	0.11	.914	-.008	.009	
rank	.098	.035	2.75	.016	.022	.174	**
Constant	12.191	.355	34.37	0	11.43	12.952	***

*** p<.01, ** p<.05, * p<.1

Table 3 shows the grouping of low housing prices. The negative impact of lndis on housing prices is weakened, while the positive impact of rank on housing prices is more obvious. The age(age) of the home has little effect on the low house price group.

In Table 3, the coefficient of lndis is -0.112, indicating that when other variables remain unchanged, the housing price will decrease by 0.112 units on average with each unit increase in distance. The P-value was 0.044, and the significance level was ** ($p < 0.05$), indicating that the result was significant at the significance level of 5%. The T-value is -2.22, which supports its negative impact on house prices. It can also be concluded that distance has a negative impact on housing prices. In summary, whether it is high or low, the distance and housing prices are negative, so hypothesis 1 is verified.

The regression coefficient for the rank variable is -0.341, which indicates that assuming all other factors remain constant, housing prices decrease by an average of 0.341 units for every unit increase in the school rank value. The negative and highly significant coefficient ($p < 0.01$, marked by ***) suggests that changes in the school rank have a substantial negative impact on housing prices. This decline may be attributed to an increase in the school rank value reflecting a decrease in quality—such as falling scores or ratings—which in turn leads to lower housing prices. Additionally, the T-value for the school rank variable is -7.56, further demonstrating that it has a very strong negative impact on housing prices and is one of the most significant variables in the regression model.

5. Conclusion

The paper offers a view of the impact of shopping malls on surrounding housing prices. Two hypotheses were put forward at the initial stage of the study. According to these two hypotheses, this paper divided the question into two parts, discussing the impact of the distance between shopping centres and residential areas on the housing price and the impact of school district ranking on the housing price. The age of the housing was used as a reference factor and analysed using the STATA 17 regression model. One key finding of this research is that the distance between shopping centres and residential areas has an impact on housing prices. Additionally, by further examining school district rankings and the age of the housing, we can enhance the theoretical value and practical significance of the study. This approach may also help identify deeper factors that influence housing prices near shopping centres. The analysis affirms the following:

There is also a very close relationship between the analysed zones' housing prices and the distance to the nearest shopping malls. The very idea of shopping centres brings more convenience, better accessibility, and added amenities, which in turn will make other properties right nearby even more attractive and valuable. Distance to a shopping mall is negatively related closer to a shopping mall a home has a higher market value as the study showed in high price and low-price groups.

It is also established that the quality of school districts has a significant effect on House Price especially in the demand-income high areas. Subsequently, neighbourhoods in top-ranked districts possess higher prices because of the worth that families attribute to educational assets. Impact of housing age is insignificant, less than proximity and school district rankings has on property values though the result may be positive or negative. In general, the age is slightly detrimental, but if a home is surrounded by other homes, then there will always be a demand for a house due to location in an established district. These results point to accessibility to the shopping malls and quality of educational resources as providing significant insights into the form and future of urban housing markets to those stakeholders involved in real estate and urban planning and policy.

References

[1] Al-Sulaiti, I. (2022). Mega shopping malls technology-enabled facilities, destination image, tourists' behavior and revisit intentions: Implications of the SOR theory. Frontiers in Environmental Science, 10. https: //doi.org/10.3389/fenvs.2022.965642.

[2] Whitehand, J.W.R., Dawson, J.A., & Lord, J.D. (1986). Shopping Centre Development: Policies and Prospects. The Geographical Journal, 152(1), 110-111. https: //doi.org/10.2307/632973.

[3] Dávila, A. (2016). El Mall: The Spatial and Class Politics of Shopping Malls in Latin America. University of California Press. https: //doi.org/10.1525/9780520961920.

[4] Zhang, X., & Wu, X. (2016). Spatial-temporal Evolution of Malls in Guangzhou City and Its Impact on Urban Commercial Spatial Structure. Scientia Geographical Sinica, 36(2), 231-238. doi: 10.13249/j.cnki.sgs.2016.02.009.

[5] Liu, C., Zheng, Y., Zhao, Q., & Wang, C. (2020). Financial stability and real estate price fluctuation in China. Physica A: Statistical Mechanics and its Applications, 540, 122980.

[6] Wang, R., & Hou, J. (2021). Land finance, land attracting investment and housing price fluctuations in China. International Review of Economics & Finance, 72, 690-699.

[7] Gruen, V. (1964). The Heart of Our Cities. Simon and Schuster.

[8] ICSC. (2009). Shopping Center Definitions. https: //incorporacaoimobiliaria.com/wp-content/uploads/2009/09/scdefinitions99.pdf

[9] Križan, F., Kunc, J., Bilková, K., & Novotná, M. (2021). Transformation and Sustainable Development of Shopping Centers: Case of Czech and Slovak Cities. Sustainability, 14(1), 62. https: //doi.org/10.3390/su14010062.

[10] Ibrahim, I., Bon, A.T., Nawawi, A.H., Safian, E.E.M., & Ibrahim, I. (2018). Shopping centre classification scheme: A comparison of international case studies. Proceedings of the International Conference on Industrial Engineering and Operations Management Bandung, Indonesia, 6-8.

[11] Shen, K. 2016. "The Impact of Customer Shopping Duration on Cross-Shopping Behavior in Shopping Mall: A Theoretical Model." *Modern Marketing* 6 (4): 67–73. https: //doi.org/10.12677/mom.2016.64008.

[12] Yilmaz, V. 2004. "Consumer Behavior in Shopping Center Choice." Social Behavior and Personality: An International Journal 32 (8): 783–90. https: //doi.org/10.2224/sbp.2004.32.8.783.