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Housing Affordability in East Asian Capital Cities:
A Comparative Analysis of the Housing Markets of Beijing, Seoul, and Tokyo

Topic and Research Question

The influx of people in cities led to the emergence of megacities. With the population growth in cities, the demand for living space in cities, especially in capitals, has also increased. This demand has led to changes in the housing markets in capitals. In order to quantify the changes, this thesis compares the development of affordable housing in the three East Asian capitals Beijing, Tokyo, and Seoul, over the period 2000 to 2017. This thesis aims to answer the following research questions:

- How does the housing affordability situation differ in the cities Beijing, Seoul, and Tokyo between 2000 and 2017?

- Are the housing prices developing in equilibrium to the average income of households?

- Can people in the capital cities afford to buy real estate?

State of the Art

The neoclassical economic theory defines a market by supply and demand behavior. The real estate market is highly segmented, as the supply and demand behavior differentiate between real estate type and location. Additionally, real estate has two main characteristics; it is immobile and heterogeneous.

Scholars use various approaches to measure housing affordability. The debate about the definition and methods to measure housing affordability is ongoing and there is no standardized and universally accepted definition yet. Most commonly though it is defined by the relationship or differences between income and housing costs.

The measurement mechanisms of housing affordability can be grouped into three approach categories; the Behavior Approach, the Subjective Approach, and the Normative Approach. Depending on the approach and the measurements used to calculate housing affordability, different factors influencing housing affordability are measured. The two most common factors are the household's income and their housing costs.

Although there is no consensus on which is the best approach to detect housing affordability. Carswell (2012, p. 13) points out that the expenditure-to-income ratios are most commonly used to measure affordability.

Methodology and Approach

To analyze the housing affordability of the three capital cities, this thesis uses the Normative Approach and is carried out in three stages: 1. investigation of the real estate market, 2. calculation of the relative housing price, through a measurement of the price-to-income ratio and 3. evaluation of the price-to-income ratio (PIR).

Criteria	Sub-Criteria	Objective of the criteria
1. Real Estate Market	Economic Demographic Transaction Cost	o observe the economic development via: - current GDP (in US $) - annual GDP Growth (in US $) - real estate share in GDP (in US $) o observe demographic the development via: - younger vs. older Generation - urban population growth o observe the transaction cost via: - real estate tax - value added tax - inheritances tax - stamp tax - registration duties
2. Relative Housing Price	Price-to-Income ratio	o observe the development of the average selling price per square meter for a house (price/ m²) (in national currency) o observe the development of the gross floor area per housing unit (m²) o observe the development of the average annual income per capita per household (in national currency) o observe the development of the average amount of people in one household
3. Rating of PIR	Determine Affordability Situation	o observe the development of: - Result of PIR

Source: sources and analysis cited in the study. Author's design.

Main Facts

1. Real Estate Market

The findings of the framework showed that long-term determinants of the real estate prices are heterogeneous. China and South Korea had an increase in the GDP (current) and Japan a slight decrease. All three countries report having a decline in GDP growth since 2000. Whereas Seoul had a decline in population, Beijing's and Tokyo's population increased. Further, the demographic data of Tokyo and Seoul demonstrated an increase in the elderly population. While examining the transaction cost, it was identified that South Korea and China are imposing high taxation on property.

2. Relative Housing Price

All three capital cities report an increase in the average real estate price. Among which Seoul's real estate prices increased the least and Beijing's the highest. Beijing and Seoul both reported an increase in the average floor space per housing unit. While Tokyo's data indicated no change, however, while calculating the ideal floor space per household a decrease was detected due to a smaller number of people per household. The household income comparison revealed that while Seoul's and Beijing's average income increased, the average income in Tokyo declined. All three capital cities report having a decline in the average number of people per household.

3. Rating of the Price-to-Income Ration

The results demonstrate that during the analyzed time, the housing affordability in all three capital cities was seriously and severely unaffordable.

Seoul's housing market situation in 2014, 2016, and 2017 was severely unaffordable. In Beijing, the average house prices have risen more quickly than the average income, thus Beijing had the highest price-to-income ratio results and therefore the least affordable housing market. Tokyo had the lowest price-to-income ratio and thus ranked to have the most affordable housing market.
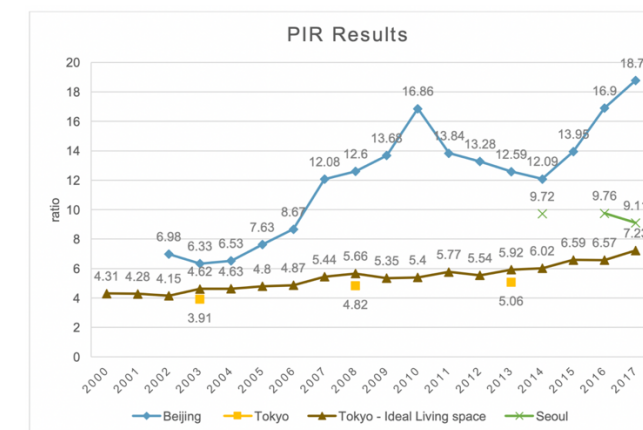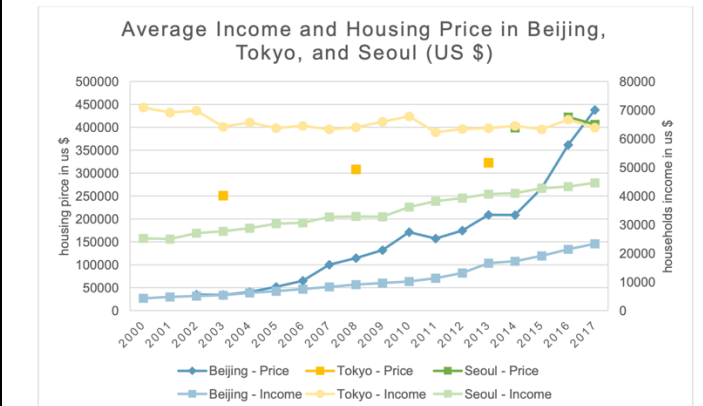

Source: sources and analysis cited in the study. Author's design.

Results

The analysis shows that the housing affordability situation in these cities is very similar. All three cities have unaffordable housing markets. Beijing and Seoul have a severely unaffordable housing situation. In particular, Beijing's unaffordability situation has intensified in the last ten years of the study. Since 2007, Tokyo's residential housing markets increased from seriously unaffordable to severely unaffordable. Out of all three cities, Beijing had the most significant development, with housing affordability deteriorating the most.

The analysis leads to the conclusion that despite the different levels of economic development, economic systems, and property rights, it is difficult for people in these three capital cities to purchase a house solely with their household's income. This is due to the fact that average households' income has not increased in the same direction nor at the same pace as housing prices.

Source: sources and analysis cited in the study. Author's design.

References

All references can be found in the full version of the MA thesis available at http://othes.univie.ac.at

About the Author

Sarah Levihn holds a B.Sc. in Architecture from Brandenburg Technical University and a B.A. in China Studies from the Free University of Berlin. During her studies, she studied a year at the Xi'an University of Architecture and Technology as well a year at Peking University. She gained work experience in Germany, Austria, PRC, and the USA. Amongst many, her interests concentrate around real estate, sustainable architecture, and urbanization with the emphasis on Greater China.

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