



## Very Long-Term International Housing Price Trends

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**Abstract:** *Against the backdrop of recent global house price inflation, this paper addresses the question commonly asked about asset price booms and crises: 'Is this time different?' To identify the distinctive characteristics of today's house price booms, we examined the long-term history of housing prices in five capital cities: Amsterdam, London, Beijing, Seoul, and Tokyo. Specifically, we employed house price, annual income, and average expenditure data to estimate real house price indices from the 1620s to the 2020s. The findings indicate that recent house price inflation is distinct not in severity but in synchronicity. The amplitude of house price booms and busts has remained consistent. However, house price cycles that historically moved independently have, in recent decades, more often shown similar variations both regionally and internationally. Now, prices tend to rise and fall together, but do not rise above the historical peaks of the past.*

**Keywords:** house price cycles; housing history; house price cycle synchronicity; asset price booms and busts.



## Introduction

Although housing boom and bust cycles have repeated throughout history (Bordo and Landon-Lane 2014), the persistent global house price inflation of the last decade has raised concerns over housing affordability and widening wealth inequality (Piketty 2017). International organisations, including the UN, have recently highlighted the severity of the crisis and urged a rethink of solutions (United Nations 2023). The burgeoning discourse on the housing crisis recalls the typical question regarding all price booms and financial crises: ‘Is this time different?’

We try to answer the question of whether today is different by tracing the long-term history of house prices in five European and Asian cities: London, Amsterdam, Beijing, Seoul, and Tokyo. Specifically, we compare historical and modern real house price trends, calculated using house price and income data from different sources, to identify the distinct features of current house price booms.

## Data and methodology

We collected historical and modern house price data for five cities from various sources and estimated real house price indices to compare them over time and across different locations. Here, the term ‘real’ means house prices compared to contemporary annual incomes or average expenditures. The minimum value of each data series was used as the base of the real house index and set as 100. The cities we selected were chosen because they have the most extensive and reliable time series data. Table 1 provides the details on data sources and estimation methodologies.

**Table 1: Data sources and processing**

| Data                             | Source   | Estimation Process  | Period    |
|----------------------------------|--|---|-----------|
| <b>Amsterdam Historical Data</b> | Eichholtz (1997)                                     | <ul style="list-style-type: none"><li>Data are drawn from the Herengracht index, estimated on the basis of the house prices of properties on the Herengracht Canal in Amsterdam, where the most expensive houses in the city have traditionally been located, and from the consumer price index (CPI) for the Netherlands.</li><li>Original data, which are biennial, are averaged for each decade.</li></ul>   | 1620–1970 |
| <b>Amsterdam Modern Data</b>     | Dutch Central Bureau of Statistics, World Bank Group | <ul style="list-style-type: none"><li>The price index for existing own homes by region drawn from the Dutch Central Bureau of Statistics are converted into real values using CPI data for the Netherlands via data from the World Bank Group.<sup>1</sup></li></ul>  | 1995–2023 |
| <b>London Historical Data</b>    | Bank of England                                      | <ul style="list-style-type: none"><li>The Millennium of Microeconomic Data for the UK from the Bank of England, which contain data on London house prices from 1895 to 1939, estimated by Samy (2015) using a fully specified hedonic model and chained Fisher index, is used.</li><li>is used along with CPI data for Great Britain (GB), England, and Northern Ireland that were gathered from different sources.</li><li>The CPI data for Great Britain (GB), England, and Northern Ireland, which were gathered from different sources, were used to deflate the nominal house price index and create the real price index.</li></ul> | 1895–1939 |



Table 1: Data sources and processing (cont.)

| Data                           | Source  | Estimation Process  | Period    |
|--------------------------------|---|---|-----------|
| London Modern Data             | HM Land Registry, Office for National Statistics        | <ul style="list-style-type: none"> <li>The UK house price index was converted into real values using HM Land Registry public data and average gross weekly earnings data from the Office for National Statistics.</li> <li>The gross income of adult full-time employees in the 90th percentile for all of GB was used as the proxy for the income level in London.</li> <li>The values employed reflect the use of a new methodology in 2004, 2006, and 2011, when improved methods were used, and two different values are provided in those years.</li> <li>The missing value for 1969 is interpolated from the average of 1968 and 1970.</li> </ul> | 1968–2021 |
| Beijing Historical Data        | Raff et al. (2013)                                      | <ul style="list-style-type: none"> <li>The nominal house price index, estimated by Raff et al. (2013) using a hedonic model and housing price archival data from 498 sale contracts, is deflated with the rice price index<sup>3</sup> created by the same authors based on national average rice price data from Peng (1954), to make the real house price index.</li> </ul>   | 1645–1840 |
| Beijing Modern Data            | National Bureau of Statistics of China                  | <ul style="list-style-type: none"> <li>The average selling price of commercial residential buildings (yuan per m<sup>2</sup>) was transformed into real values using the average wage of staff and workers in urban units of Beijing, representing the average wage of on-the-job workers in Beijing.</li> <li>The price-to-income ratio (PIR) was calculated using the average house price and average wage data to be employed as an additional indicator.</li> </ul>   | 1999–2022 |
| Seoul Historical Data          | Lee (2013), Seoul Museum of History (2023), Yang (2008) | <ul style="list-style-type: none"> <li>House transaction records documented by the Seoul Museum of History (2023) and Yang (2008) were used together with rice prices in the late Joseon period estimated by Lee (2013).</li> <li>Given that most house transaction records only contain one or two transactions that cannot reliably show long-term house price changes, two houses<sup>4</sup> displaying long-term house price fluctuations were selected, and their prices were averaged to make the nominal house price index.</li> <li>Average nominal house prices were deflated with rice prices.</li> </ul>                                    | 1700–1869 |
| Seoul Modern Data              | KB Land, Statistics Korea                               | <ul style="list-style-type: none"> <li>House sale prices for all types of houses, which were collected from KB (Kookmin Bank) Land<sup>5</sup> were deflated with CPI data provided by the Statistics Korea.</li> </ul>   | 1986–2023 |
| Tokyo Modern Data <sup>6</sup> | Land Research Institute Japan, Statistics of Japan      | <ul style="list-style-type: none"> <li>The average price of existing condominium sales in the Tokyo Metropolitan Area (10,000 yen per m<sup>2</sup>) from the Land Research Institute Japan was converted into a real house price index using the Tokyo CPI from the Japan Statistics Bureau.</li> <li>December house price data were used to convert monthly data to annual data.</li> </ul>   | 1992–2023 |

Source: Authors.

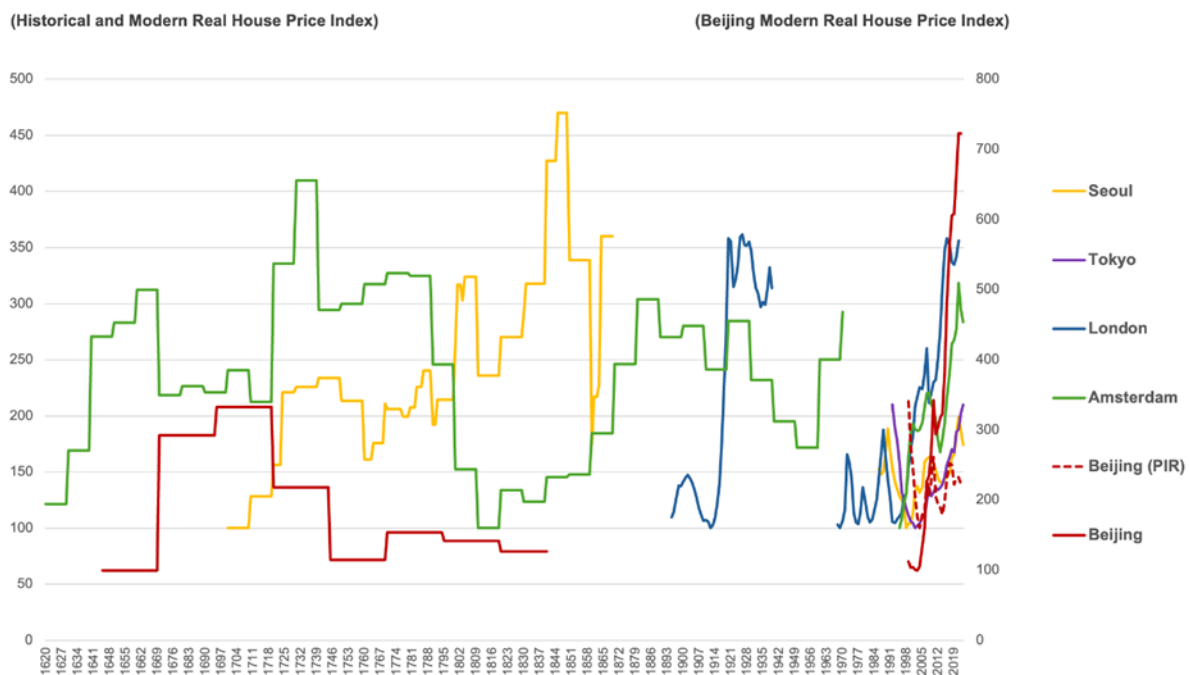
<sup>1</sup> Housing price data are data obtained on a quarterly basis, while CPI data are annual data. Thus, the fourth quarter of a housing price was used as a proxy for the annual data. The price index for existing own homes represents the house prices of existing owner-occupied homes in the Amsterdam Metropolitan Area (Groot-Amsterdam).



## Results

Figure 1 outlines the five cities' historical and modern real house price indices. House price boom and bust cycles have repeated several times in the selected cities, while the peak of each cycle does not exceed 500 (five times the lowest ever recorded real prices), except in modern Beijing, where the inflation-adjusted index almost reaches 730. However, Beijing's Price-to-Income Ratio (PIR) does not exceed 250, so its range is similar to other house price cycles. It is also worth noting that historical house price cycles have moved independently, whereas modern cycles have become much more synced with each other and indicate the boom phase that has recently caused consternation. Furthermore, house prices in Asian cities plunged in the late 20th century when the Asian Financial Crisis (AFC) broke out and Japan's bubble economy collapsed. Conversely, European cities experienced house price inflation during the same period. Thus, the current global synchronisation is unusual. Given this coincidence, this time might be different.

**Figure 1: The historical and modern real house price indexes for five cities**



*Source: Authors' calculations.*

Although the scale of this data set is more extensive than the Herengracht index and wider even than inner-city Amsterdam, we used the most spatially detailed publicly accessible data for house prices in the Netherlands.

<sup>2</sup> The dataset suggested two series of house price indices. One is from 1895 to 1922, and the other is from 1919 to 1939. We employed the former series from 1895 to 1920 and the latter from 1921 to 1939. Though the dataset has longer time-series house price data for Great Britain, including only England and Northern Ireland, we selected the temporally shorter but spatially London-focused house price data out given this study's city-scale of inquiry. The CPI for 1882–1914 is based on the paper by Feinstein (1991), and the data for 1915–1949 is from O'Donoghue et al. (2004).

<sup>3</sup> Rice prices represent the general price level as a commodity that always accounted for more than one-half of household expenditures in pre-modern China (from the mid-17th to the early 19th centuries). Therefore, we used the rice price data as a proxy for average expenditures.

<sup>4</sup> Those houses accommodated upper-class families and were located in the central area of modern Seoul.



## Amsterdam

Amsterdam's real house price index during the 17th century was highly volatile, reflecting fluctuations in trade that determined the city's growing and waning wealth during that period. Notably, wars in the late 17th century disrupted Amsterdam's trade activities and caused a decline in real house prices. With Amsterdam's changing role from a trading city to a financial centre, house prices in the 18th century were influenced by financial cycles. The financial bubble in the early 18th century and the ensuing financial crises thrashed the index. The index plunged in the late 18th and early 19th centuries, a period characterised by a long and deep economic crisis and the foundation of the Batavian Republic, but it gradually recovered with the onset of industrialisation in the late 19th century. Industrialisation led to rapid population growth in Amsterdam, increasing the demand for housing and housing prices. The First World War (WWI) only briefly shocked Amsterdam's house prices, while the Second World War (WWII) pulled down house prices for some decades. Subsequently, real house prices recovered to the level seen before WWII. Inflation after WWII also contributed to the unprecedented growth of nominal house prices (Eichholtz 1997).

While the historical house price index shows more fluctuations, the modern index indicates that house prices in Amsterdam have increased gradually, except for a short-term drop after the Global Financial Crisis (GFC) and the Eurozone Crisis. Given that the modern index represents the real house prices in the Amsterdam Metropolitan Area, the level of house price inflation in central Amsterdam may be greater than what is shown in Figure 1. Financial market deregulation and pro-homeownership policies have accelerated mortgage debt expansion in the Netherlands since the 1990s, causing a rise in Amsterdam's house prices in the last several decades. The mortgage-debt-led house price increase has continued even after the GFC, partly owing to the low-interest rate conditions that were accompanied by the GFC (Wigger 2021).

## Beijing

Beijing's historical data show house price trends under the Qing Dynasty. In 1644, the Qing Empire seized control of Beijing after the Manchu-Han civil war and the rebellions in the early 17th century. As the capital city of the Qing Empire, Beijing experienced rapid growth in both its population and economy from the mid-17th to the late 18th centuries, which also increased house prices.

Despite the gradual increase in the average rice prices in China, this increase was outpaced by the upward trend of house prices. House prices soared in the early 17th century owing to the easing of regulations on housing transactions in the Inner City of Beijing and to population growth. However, after the early 18th century, the Qing Dynasty relocated the Manchu people from the Inner City to the Outer City and other cities. Furthermore, many households moved out of the Inner City because of skyrocketing living expenses and housing prices. Constructing new houses in the Outer City also alleviated the pressure on the housing market and deflated house prices (Raff et al. 2013).

<sup>5</sup> The Kookmin Bank (formerly the Housing and Commercial Bank) was publicly operated by the government until the outbreak of the Asian Financial Crisis, so it has collected and announced housing price data since the 1980s, which is the longest time series data on house prices in South Korea.

<sup>6</sup> To the best of our knowledge, historical house data for Tokyo are unavailable. It is assumed that this is partially because Tokyo was established as the capital of modern Japan in 1868 when the emperor moved from Kyoto to Tokyo as a result of the Meiji Restoration (Sand 2022). Therefore, we only computed the modern real house price index for Tokyo.





Modern Beijing has the highest real (inflation-adjusted) house price index, which exceeded 720 in 2021, across the time and space in our investigation. The large amplitude of the price cycle may be the result of the golden period in the Chinese housing market that followed the remarkable economic growth China experienced after the GFC. Housing reform in the 1990s brought the privatisation and commercialisation of housing in China, and this caused an extreme housing market boom after the late 1990s. The rapid growth of the economy and the urban population also fuelled housing price inflation in Beijing (Zhang and Yi 2018). Contrastingly, the peak of the PIR is less than 250 and indicates a plunge in average house prices compared to average wages after the AFC. Compared to wages, Beijing's housing prices were higher in the 1990s than in recent years. The PIR has fluctuated for the last two decades, which illustrates the dynamic interplay between house prices and wages.

## Seoul

Seoul has the highest peak among historical house price cycles. This might stem from the limited number of samples, which are mansions in central Seoul serving elite-class households. Despite such limitations, the housing price boom in the late 19th century can be seen to follow a pattern reported in previous studies. According to Yoo and Kim (2020), the price of common people's houses quadrupled while that of the elite people tripled from 1860 to 1900, mainly because of urbanisation. After the war with the Qing in the 17th century, the Joseon dynasty enlarged Seoul's military base, triggering an inflow of soldiers and their families to Seoul. Moreover, the modernisation of agriculture intensified landlords' land monopoly in rural areas, fuelling the rural-to-urban migration of displaced farmers. Since there was limited space in pre-modern Seoul, Hanseong, this immigration stream increased the demand for houses and, consequently, house prices.

The modern house price cycle in Seoul displays a smaller amplitude than that seen in the longer history of house price fluctuations in Seoul and other cities. Rapid economic growth raised house prices in Seoul until the early 1990s, while the real house price index plunged and reached its lowest point in 1998, when the AFC hit South Korea. The 1997–1998 foreign exchange crisis lowered interest rates and liberalised housing finance in South Korea. Alongside the introduction of policies to stimulate the depressed housing market, housing finance deregulation raised house prices in Seoul during the late 1990s and the early 2000s. The index decreased after the GFC but recovered, backed by expanding mortgage debt in the low-interest rate conditions. With growing mortgage debt and deteriorating housing affordability, the South Korean government started re-regulating the housing and mortgage market in the mid-2010s by focusing on the Seoul Metropolitan Area (Lee and Hong 2022), which partially contributed to the lower amplitude of the modern house price cycle in Seoul.

## London

London has a surprisingly short set of historical house price data. Some studies go back to 1845, but these are for all of the UK. We start a little later for London (Lamont 2023). Both the historical and the modern series for London show a similar rise in prices at times of economic boom to that of other global cities. Prices were lowest during WWI and the 1970s. WWI saw the introduction of rent control and social housing expansion. However, the construction of social housing was initially very slow in London, and its peak did not occur until the 1970s. Nevertheless, the relaxed credit conditions by the Bank of England, which Tony Barber suggested, resulted in the 1973 house price boom. This boom ended with stagflation in the mid-1970s, triggered by the OPEC oil embargo at that time. The



fluctuation of house price cycles continued in the 1980s and 1990s following the Lawson boom and its busts (Elliott 2014). As has been the case with some other global cities, contrary to the past, house prices in London have continuously increased during the 21st century, with a short exception after the GFC. Moreover, house price inflation intensified after the GFC, and the real house price index peaked in 2021 at 356.

## Tokyo

Tokyo's real house price index continuously decreased from 1992, and its value in the early 2000s was lower than the series minimum had been before then. The index has rebounded since the mid-2000s and recovered to over 200 in 2023. This illustrates Japan's real estate bubble collapse in the early 1990s and its slow recovery. In the late 1980s, Tokyo experienced a drastic real estate bubble. For instance, land prices in the five central districts of Tokyo increased sixfold during this period. However, in the early 1990s, when the bubble burst, house prices plunged and remained at a lower level (Aveline-Dubach 2014). There was a slight recovery in the mid-2000s, but the GFC postponed its further recovery (Ohnishi et al. 2020). Real house prices in Tokyo started to rise gradually from the mid-2010s and fully recuperated in 2023.

## Discussion

Comparing housing prices is not simple, as a series of decisions can appear arbitrary, especially when historical data are being used. The data employed here were created using different methods of data collection, aggregation, and processing. Furthermore, owing to limited data availability, we often had to use national annual incomes and national average expenditures to construct house price indices. Nevertheless, we collected data from reliable sources, including national statistical offices and central banks, and attempted to build comparable indices across different time periods and geographical spaces. To create comparable indices, we also made an arbitrary decision, which was to set the series to 100 at the minimum value of each series for each city.

Notwithstanding the above-mentioned limitations, we found some remarkable similarities over time: in most cases, prices rose only to just over three times their lowest values during the boom period. As the lowest values tend to equal about 25% of income, and people cannot pay much more than 75% of their income, it may simply be that these are the logical limits of the range in real house price cycles. Booms can last a few decades, but they always end so far – so we could conclude that, as yet, 'this time' has in each case never been that different from previous times, except for the increased global synchronicity.

Occasionally, as in the case of Beijing today and Seoul in the 1840s, a peak can be 4.5 times the low point. Such very high peaks tend to be abrupt and short-lived. Amsterdam in the 1720s was similar. However, note that we used a different scale for Beijing (on the right-hand side of our figure). It could be said that Beijing has actually broken the historical model. Still, we are not so sure of this because the PIR measure of housing prices is much lower than the conventional measure, which compares housing prices to all other prices. It may be that the 'true' current prices in Beijing have the same peak that other series have shown to be possible and no higher.



It can be argued that the increasing synchronicity of house price cycles is a distinctive modern trend. The UK and the Netherlands experienced housing financialisation or mortgage-debt-led house price inflation in the modern era (Kohl 2021). Furthermore, accelerated financial globalisation enabled the international movement of excess liquidity generated in worldwide low-interest rate conditions after the GFC. This excess liquidity, backed by ‘quantitative easing,’ flowed into housing markets worldwide, resulting in unusually synchronised house price inflation (Ryan-Collins 2021). Consequently, most cities experienced a rapid rise in house prices after the GFC. However, some cities have witnessed a slight downward trend in the last few years, suggesting a possible end to this current boom.

## Conclusion

Capital cities tend to show greater volatility in house price variations, especially in countries that were or still are centres of world wealth. From around 1630 onwards, the range of variation over time has not expanded. One possible explanation is that the pattern observed in this study has become established in the roughly four-century-long history of capitalism. Although there has been no change in the recurrence of house price cycles and their range, modern house price cycles are different from historical ones in terms of their synchronicity. Before the late 20th century, house prices fluctuated independently in all five cities. Furthermore, house prices were more often determined by domestic political and economic situations, such as wars, the rise of a new empire, or economic policies.

By contrast, modern house prices show similar variations regionally and internationally. House prices in Asian cities dropped following the collapse of Japan’s bubble economy and the AFC. Moreover, house prices in all cities declined simultaneously immediately after the GFC and subsequently rose rapidly after that. Therefore, future research could scrutinise the potential impacts of the synchronicities in the global housing market. Globally, population growth is slowing down. The need for people to live and work in the very heart of key cities may decline as lessons on remote working were learned globally following the COVID-19 crisis. Recently, concerns over climate change and economic inequality have risen worldwide. These have implications for how footloose economically advantaged people can be in the future and how much wealth can, in effect, be tied up in property values in just a few places (Dorling 2025). If a real change in attitudes is beginning, one area in which we may see that change is in how housing prices in global cities change, as compared to the four-hundred-year period from 1620 to 2020 that is covered in Figure 1.





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