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KENYA RESIDENTIAL PROPERTY PRICE INDEX



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PREFACE

It gives me great pleasure to present the inaugural report of the Residential Property Price Index (RPPI). This important milestone strengthens Kenya's macroeconomic statistical framework and enhances transparency in the residential property market.

The Residential Property Price Index provides a systematic and credible measure of changes in residential property prices in Kenya. The property market plays a critical role in economic growth, household wealth accumulation, credit markets, and financial stability. The availability of official, reliable and timely property price statistics is essential to inform evidence-based policy-making, macroeconomic surveillance, investment planning, and informed decision-making by households and businesses.

The development of the RPPI reflects the commitment of the Kenya National Bureau of Statistics to continuously expand and improve official statistics in line with international best practices. The methodology and data applied in compiling the index adheres to internationally recognized standards for property price statistics, ensuring robustness, consistency, and comparability of the estimates. We are deeply grateful for the technical assistance received from the International Monetary Fund (IMF) and the East African Community (EAC) Secretariat in strengthening the methodological framework, enhancing data quality, and supporting regional statistical harmonization.



Dr. Macdonald G. Obudho, EBS, MBS
Director General, Kenya National Bureau of Statistics

This achievement has been made possible through collaboration with key stakeholders within the National Statistical System (NSS). We particularly acknowledge the invaluable partnership of the Central Bank of Kenya and the Ministry of Lands, Public Works, Housing, and Urban Development, whose support has been instrumental in advancing this work. We also extend our sincere appreciation to real estate developers, property valuers, real estate agents and other market participants who have provided data that has been used to compile this index.

The Bureau is committed to expanding coverage, enhancing data quality, and deepening stakeholder engagement to ensure that the RPPI is a reliable and authoritative indicator of developments in Kenya's housing market. The Quarterly RPPI will be released within 90 days (3 months) following the end of each reference quarter.

I encourage policymakers, researchers, market participants and the public to make use of this RPPI report in their analysis and decision-making.



VARIABLE DESCRIPTION

Variable	Description
Bedrooms	Number of bedrooms in each listed property
County	County where the property is located
Date	Date of price data collection
Dwelling	Indicates if the property is an Apartment or a House (Bungalow, Maisonette)
Location	A geographical area where the property is located. This variables groups together several sub urban areas based on their homogeneity
Month	Month of price data collection
Nairobi Peri-urban	Geographical areas adjacent to Nairobi e.g Ngong', Kitengela, Kiserian, Athi River, Mlolongo, Kamulu, Mala, Limuru, Kiambu, Joska, Syokimau, Utawala, Thika
Price	Reference price of a residential property. The price used in compilation of this index is the Asking Price for the property
Property ID	A Unique identifier assigned to each property with a distinct price
Property Name	A short description of Property which includes type and amenities included in the property
Strata	Stratification involves categorizing residential properties based on dwelling type and geographical location, resulting in the formation of eight distinct strata.
Sub-urban	Area where the property is located as described in property name

The Residential Property Price Index (RPPI) tracks changes in average residential property prices in Kenya. It offers an objective measure of housing market trends, reflecting price movements that are independent of changes in property characteristics. The RPPI covers the first quarter of 2022 (2022 Q1) to the fourth quarter of 2025 (2025 Q4), based on data from property listings, the 2023/24 Real Estate Survey, and quarterly survey of real estate agents.



01 INTRODUCTION

1.1 Background

The RPPI measures the average change in market prices of residential properties in Kenya over time. It provides an objective indicator of developments in the housing market, reflecting price movements that are independent of changes in property characteristics or quality. The index covers the first quarter of 2022 (2022 Q1) to the fourth quarter of 2025 (2025 Q4) and is constructed using data on residential property asking prices drawn from property listing websites, the 2023/24 Real Estate Survey as well as quarterly survey of real estate administered to real estate agents. These data sources ensure comprehensive coverage of the residential property market across different regions and types of properties.

The index covers both apartments and standalone houses, and excludes undeveloped land, commercial properties, self-build residential units, non-market residential property transactions and transactions by non-household entities in line with the IMF 2019 Financial Soundness Indicators Compilation Guide (2019 FSI Guide)[1] and the RPPI Practical Compilation Guide 2020[2]. The index has been compiled using the Rolling Window Time Dummy Hedonic method, a statistical technique that adjusts for differences in property price determining characteristics such as dwelling type, location and number of bedrooms. This approach ensures the index reflects pure price changes over time, that are independent of variations in the types of properties.

For purposes of computing this index, Kenya's residential property market is stratified into four segments based on socio-economic and similarity in property characteristics: Nairobi Upper, Nairobi Middle, Nairobi Other, and Other Regions. This stratification accounts for regional differences in the housing market and reflects distinct market dynamics and housing attributes across regions, allowing for a more detailed and region-specific analysis of residential property price trends.

The RPPI serves as an essential tool for monitoring housing market trends, assessing housing affordability, and informing economic and financial policy. It supports decision-making by policymakers, financial institutions, real estate professionals, and researchers by providing consistent and timely information on property price dynamics in Kenya.

1.2 Justification for Development of RPPI

RPPI serves as a vital tool for a wide range of uses among different stakeholders due to its diverse applications across economic and financial domains. The RPPI informs macro-prudential policy to mitigate systemic risks emanating from misalignment of property prices from income, rent and population growth, due to excessive credit growth, speculation and structural constraints. In the realm of monetary policy, RPPI indicates the transmission of stimuli through the property prices. Changes in house prices can directly affect consumption and investment, thereby influencing overall economic activity and inflation.

Beyond monetary applications, RPPI is an indicator of economic activity and trend. An increase in housing prices either precedes or occurs during economic growth while a decline often signals economic slowdown. Moreover, the index is used for deriving price and volume measures of real estate and other related activities in national accounts. RPPI also facilitates international and regional comparisons of property price trends highlighting broader housing market dynamics. At the household level, the RPPI informs decisions related to buying or selling a home, which is usually the most significant financial transaction a household undertakes.

1. https://www.imf.org/en/Data/Statistics/FSI-guide
2. https://www.imf.org/en/Data/Statistics/RPPI-guide
3. https://eac.opendataforafrica.org/xlrnoff/eac-statistics-guidelines



02 METHODOLOGY

2.1 Data Sources

The data used in the compilation of this RPPI is collected from quarterly real estate surveys administered to real estate agents and property listing websites through web scraping. In addition, data from the 2023/24 Real Estate Survey was used in the construction of the RPPI.

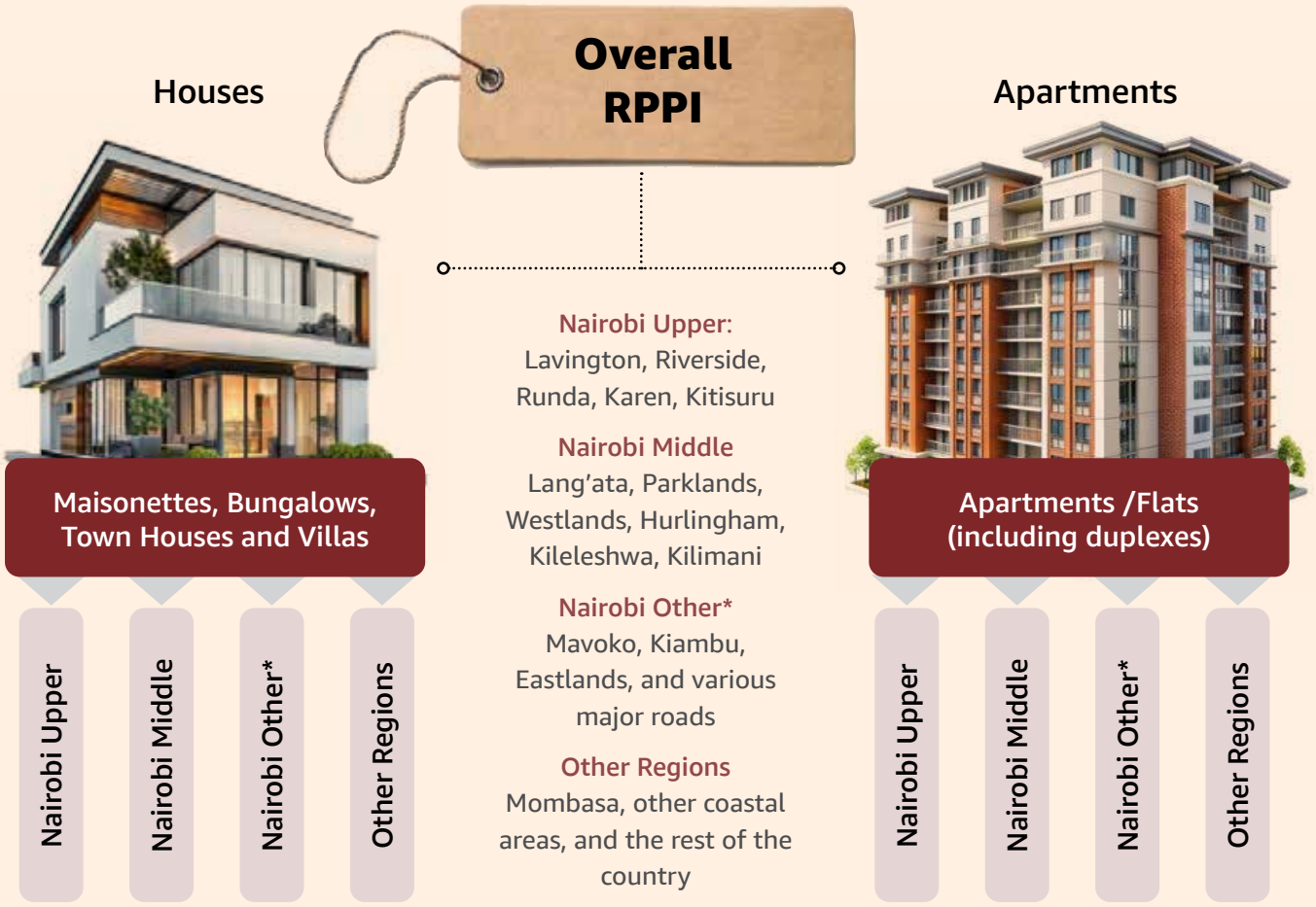
2.2 Scope

The IMF RPPI Practical Compilation Guide recommends the use of transaction price in RPPI compilation. In the absence of transaction price, the Practical Compilation Guide allows the use of asking price in the compilation of the Index. Due to challenges in obtaining data on actual transaction prices for residential properties, this index was compiled using asking prices covering apartments and stand-alone houses. The index focused on urban and peri-urban areas where the residential property transactions are concentrated. The focus on urban and peri-urban areas is also in line with the East Africa Community (EAC) Guidelines on Compilation of Financial Soundness Indicators. The extent of coverage in compiling RPPI was informed by data availability from all possible sources, which in turn depended on the extent of concentration of residential properties advertised for sale and existence of the required information for compiling the Index. The index spans from the first quarter of 2022 to the fourth quarter of 2025.

2.3 Stratification

Stratification involves classification of residential properties into distinct groups based on dwelling type and geographical location, resulting in the formation of eight distinct strata. Properties were first classified into two main categories: apartments/flats (including duplexes) and standalone houses (comprising maisonette, bungalows, town houses, and villas). Geographically, the residential property market was stratified into four segments or zones namely: Nairobi Upper (includes Lavington, Riverside, Runda, Karen, Kitisuru, Gigiri and environs), Nairobi Middle (includes Lang'ata, Parklands, Westlands, Hurlingham, Kileleshwa, Kilimani and environs), Nairobi Other (includes Nairobi East, Thika Road, Mavoko, Kiambu, Eastlands and Nairobi Peri-Urban Areas), and Other Regions (includes Mombasa, other coastal areas, and the rest of the country) as shown in **Figure 1**.

Figure 1: Stratification Process



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* Includes Nairobi Eastlands and Nairobi Peri-Urban areas.

The stratification framework allows generation of price indices that reflect variations in both types of residential property and location, offering more precise insights into market dynamics across the eight strata. The overall index is computed by aggregating sub-indices of the eight strata.

2.4 Quality Adjustment

Residential properties differ widely in characteristics, which cannot be captured by comparing price differences over time and different geographical locations. Unlike Consumer Price Index (CPI), which tracks identical goods and services each month, housing transactions involve units that vary by location, size, number of bedrooms, and dwelling type, and the number of sales/similar properties in any period is limited. The rolling-window time-dummy hedonic regression method used in compiling this Index captures the influence of key property attributes reflected in the prices. By controlling for the characteristics that influence price, the method isolates the component of price changes attributable to market conditions rather than differences in property quality. This enables compilation of an index that reliably measures pure price change over time.

2.5 Model

There are different approaches used to measure changes in residential property prices. The most basic models such as averages and medians of transaction prices are simple to compute but do not provide control for differences in property characteristics. Repeat-sales methods improve on these by comparing prices of the same property over time, albeit they are constrained by the limited number of repeat transactions and may not fully represent the overall market.

Hedonic regression models, in contrast, estimate the contribution of different property characteristics to price, allowing for the construction of a constant-quality price index. Specifically, the Rolling Window Time Dummy Hedonic (RWTDH) method used to compile this index balances the flexibility of period-by-period hedonic models with the stability of pooled time-dummy models. Instead of estimating a separate hedonic regression for each period (which may be noisy if transaction volumes are low), the model uses a moving window made up of four consecutive quarters to estimate the regression. This allows the implicit prices of property characteristics such as property type, number of bedrooms, and location to evolve gradually over time, reflecting market dynamics without overfitting.

During fitting of the Rolling-Window Hedonic model, the "window" moves forward period by period with coefficients re-estimated at each step using only transactions within the current window. This produces smooth, dynamic estimates of property characteristic prices while capturing temporal changes in the market.

By isolating the component of price change not attributable to price determining characteristics, the method derives a measure of pure price change that reflects variation in the underlying market value of comparable properties over time. This pure price change is then used to construct the RPPI. The functional form of the RWTDH model is specified as follows:

$$ln\, p_n^t = \beta_0 + \sum_{t=1}^{T} \delta^t D_n^t + \sum_{k=1}^{K} \beta_k z_{nk}^t + \varepsilon_n^t$$

Where:

t – period

n – number of properties in period t

k – characteristics

$ln\, p_n^t$ – logarithm of price

β_0 – intercept

δ^t – coefficient of the time dummy variable that will generate the index

D_n^t – time dummy variables

β_k^t – "shadow" price of characteristic k in period t

Z_{nk}^t – quantity of characteristic k in period t and property n

ε_n^t – error term

During estimation, one dummy is omitted as the reference period inside the window. The choice of window length (w) is four (4) quarters or one (1) year with the window advanced by one period (overlapping windows) in every step.

The index for each stratum for period t is derived by taking the exponent of the time dummy parameters $\beta^{(\omega)}$ and multiplying by 100.

$$Index_t = exp(\beta^{(\omega)})*100$$

After deriving sub-indices for each stratum, annually updated expenditure weights are applied to aggregate the sub-indices into composite indices for apartments, houses, and overall RPPI. This weighting approach ensures that each segment's relative market importance is accurately reflected over time, resulting in a robust and representative measure of residential property price changes. Expenditure weights represent the relative importance of each housing market segment (stratum) in overall residential property market activity. Furthermore, the weights ensure that price changes in each stratum exert proportionate influence on the overall index.

The expenditure weights are calculated as:

$$\omega_{s,t} = \frac{E_{s,t}}{\sum_s E_{s,t}}$$

Where:

$E_{s,t}$ – is total expenditure (transaction value) for stratum s in year t

$\omega_{s,t}$ – is the weight of stratum s in year t

The computed weights used in respective years from 2022 to 2025 are as indicated in **Table 1.**

Table 1: Annual Weights for RPPI Computation

Strata	Apartment				House				Total
	Nairobi			Other Regions	Nairobi			Other Regions	
	Upper	Middle	Other*		Upper	Middle	Other*		
2022	6.0	20.4	3.3	1.2	46.7	8.5	9.0	5.1	100.0
2023	5.2	16.3	3.4	4.6	33.9	8.4	11.8	16.3	100.0
2024	4.2	15.7	2.4	5.9	38.4	11.1	8.9	13.5	100.0
2025	4.1	17.8	2.8	2.2	45.6	12.0	10.1	5.3	100.0

* Includes other Nairobi peri-urban areas

2.6 Index Aggregation

The RPPI is compiled as a weighted aggregate of the eight (8) stratum-level indices, with expenditure weights updated annually to reflect changing market conditions. Chain-linking is undertaken to ensure that each period's index reflects both current price movements and the evolving nature of the residential property market. This provides a more accurate and up-to-date measure of residential property price trends.

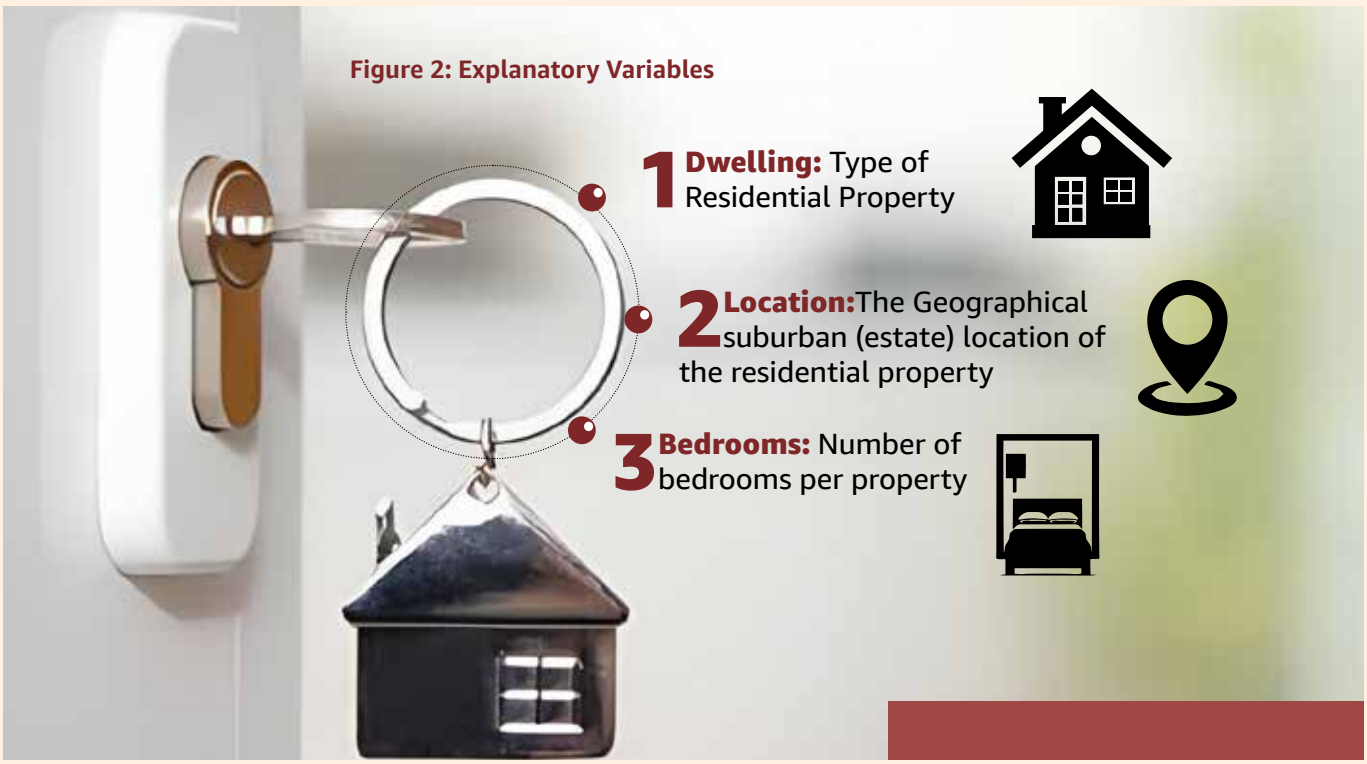
2.7 Explanatory Variables used in the RWTDH Model

Figure 2 shows the explanatory variables used in the RWTDH model. These variables explain homogeneity of characteristics which influence price changes and variations across properties.

2.8 Index Reference Period

The base period used in the computation of this Residential Property Price Index (RPPI) is 2022. This is the period during which residential property price data were first comprehensively collected and analyzed. In line with international best practices, 2022 also serves as the index reference period, as the index is normalized to a value of 100 during this quarter. All subsequent price changes are measured relative to this benchmark, allowing for meaningful comparisons over time.

Figure 2: Explanatory Variables



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03 MEDIAN PRICES

3.1 Median Prices by Strata and Period

The median prices of residential properties by dwelling type and strata for the period 2022Q1 to 2025Q4 is presented in Table 3. The variation in property prices indicate movements in prices across time and strata. Within stratum, median prices masks variances due to property characteristics. Median asking prices by dwelling type, stratum and number of bedrooms per quarter are presented in **Annex 1.**

Table 3: Median Prices of Residential Properties by Dwelling Type and Strata from 2022 to 2025, (KSh '000)

Period	Apartment				Houses			
	Nairobi			Other Regions	Nairobi			Other Regions
	Upper	Middle	Other		Upper	Middle	Other	
2022Q1	21,500.00	18,500.00	9,000.00	18,000 .00	85,000.00	39,000.00	13,000.00	32,000.00
2022Q2	19,000.00	17,500.00	8,500.00	17,500.00	85,000.00	46,000.00	13,500.00	40,500.00
2022Q3	18,000.00	17,500.00	8,950.00	17,000.00	80,500.00	40,875.00	14,000.00	40,000.00
2022Q4	17,500.00	17,000.00	8,500.00	17,000.00	84,500.00	45,000.00	13,550.00	35,000.00
2023Q1	12,150.00	16,750.00	7,150.00	15,000.00	79,500.00	45,000.00	15,000.00	20,000.00
2023Q2	17,466.00	17,000.00	8,700.00	13,000.00	85,000.00	45,000.00	14,500.00	18,000.00
2023Q3	13,000.00	13,500.00	6,500.00	15,000.00	95,000.00	50,000.00	17,500.00	20,000.00
2023Q4	15,775.00	13,325.00	8,000.00	13,600.00	90,000.00	45,000.00	16,000.00	16,000.00
2024Q1	17,000.00	14,500.00	7,500.00	15,000.00	88,000.00	55,000.00	16,500.00	28,000.00
2024Q2	21,000.00	15,000.00	8,000.00	10,000.00	105,000.00	48,000.00	16,500.00	22,000.00
2024Q3	15,050.00	13,162.50	8,000.00	11,500.00	85,000.00	56,000.00	15,000.00	25,000.00
2024Q4	15,000.00	14,000.00	6,800.00	12,750.00	100,000.00	65,000.00	17,000.00	32,750.00
2025Q1	14,925.00	13,500.00	7,500.00	9,500.00	98,500.00	55,000.00	17,500.00	24,739.50
2025Q2	14,000.00	13,900.00	8,000.00	13,500.00	95,000.00	47,250.00	15,500.00	36,671.88
2025Q3	13,700.00	13,725.00	7,500.00	9,500.00	100,000.00	60,000.00	16,500.00	35,000.00
2025Q4	12,000.00	12,000.00	8,500.00	11,500.00	100,000.00	65,000.00	16,000.00	28,900.00

04 RESIDENTIAL PROPERTY PRICE INDEX AND INFLATION

4.1 Overall Residential Property Price Index

Figure 3 shows trends in the index for apartments, houses and overall RPPI. The trend in the index masks significant variation in price movements between apartments and standalone houses over the period 2022 Q1 – 2025 Q4 (2022=100). Overall residential property price index increased from 100.8 in 2022 Q1 to 117.7 in 2025 Q4. This shows an increase of 16.8% in residential property prices over that period. This may partly be attributed to economic uncertainty, reduced household incomes and tighter credit conditions, which may have dampened demand for residential properties. From 2023 Q1 onward, the RPPI increased by 17.5% from 100.3 to 117.7 in 2025 Q4, reflecting recovery in property prices.

4.1.2 Apartment Index

The index for apartments gradually declined to 88.9 in 2023 from 102.5 in 2022 Q1. In addition, the price index for Nairobi upper and Nairobi middle declined from 100.9 and 100.8 in 2022 Q2 to 82.6 and 83.8 in 2025 Q4, respectively while apartments in Nairobi other increased from 97.9 to 127.4 during the same period.

The decline in the overall apartment index may be partly due to subdued market performance, weaker demand, shifting buyer preferences and sectoral saturation.

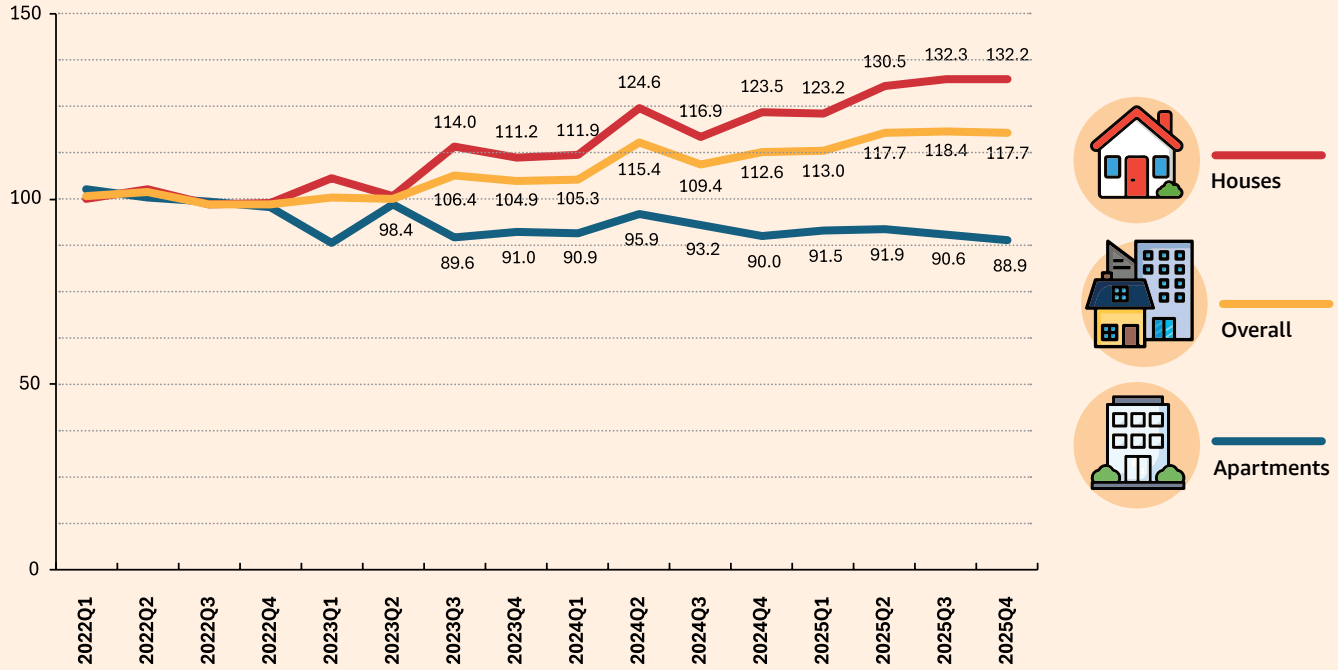
As shown in **Figure 3** and **Table 4**, the index recorded a sharp drop in 2023, a brief recovery in 2024 and a renewed weakening in 2025. The index was 88.9 in 2025 Q4. Unlike the steadily rising house index, apartments exhibit sustained downward pressure, which may be partly due to subdued market performance, weaker demand, possible oversupply in some urban segments and shifting buyer preferences.

4.1.3 House Index

The index for houses increased from 100 in 2022 Q1 to 132.2 by 2025 Q4 resulting in an inflation of 32 percent. This increase reflects strong demand for standalone homes in suburban and peri-urban areas, supported by strong buyer preference and limited supply in some urban segments.



Figure 3: Residential Property Price Index



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Table 4: Residential Property Price Index

2022=100	Apartments	Houses	Overall RPPI
2022Q1	102.5	100.0	100.8
2022Q2	100.6	102.5	101.9
2022Q3	99.2	98.5	98.7
2022Q4	97.7	99.0	98.6
2022 Annual	**100.0**	**100.0**	**100.0**
2023Q1	88.3	105.8	100.3
2023Q2	98.4	100.7	100.0
2023Q3	89.6	114.0	106.4
2023Q4	91.0	111.2	104.9
2023 Annual	**91.8**	**107.9**	**102.9**
2024Q1	90.9	111.9	105.3
2024Q2	95.9	124.6	115.4
2024Q3	93.2	116.9	109.4
2024Q4	90.0	123.5	112.6
2024 Annual	**92.5**	**119.2**	**110.7**
2025Q1	91.5	123.2	113.0
2025Q2	91.9	130.5	117.7
2025Q3	90.6	132.3	118.4
2025Q4	88.9	132.2	117.7
2025 Annual	**90.7**	**129.6**	**116.7**

4.1.4 Residential **Property** Price Index by Stratum

The trend in the residential property price index by stratum is shown in **Figure 4** and **Table 5.** Across strata, the index shows divergent trends between apartments and houses as well as Nairobi and other regions.

Inflation for apartment prices in Nairobi especially for Nairobi upper segment declined between 2023 and 2025 while Nairobi middle and other segments increased.

Inflation for houses increased while that House price inflation was greater than apartment price inflation

House price indices have displayed a strong and persistent upward trend, especially in Nairobi Middle, Nairobi Other, and Nairobi Upper, all of which rose sharply from 2023 onward with Nairobi Other showing the steepest growth, eventually reaching around 143.5 in 2025 Q4. House prices in Other Regions have been fluctuating widely but remain mostly below 100 until 2025 Q4. Overall, the RPPI by stratum reveals weak performance and volatility in the market for apartments but robust, concentrated house price growth in Nairobi, highlighting a widening market disparity across housing types and regions.

Figure 4: Residential Property Price Index by Stratum

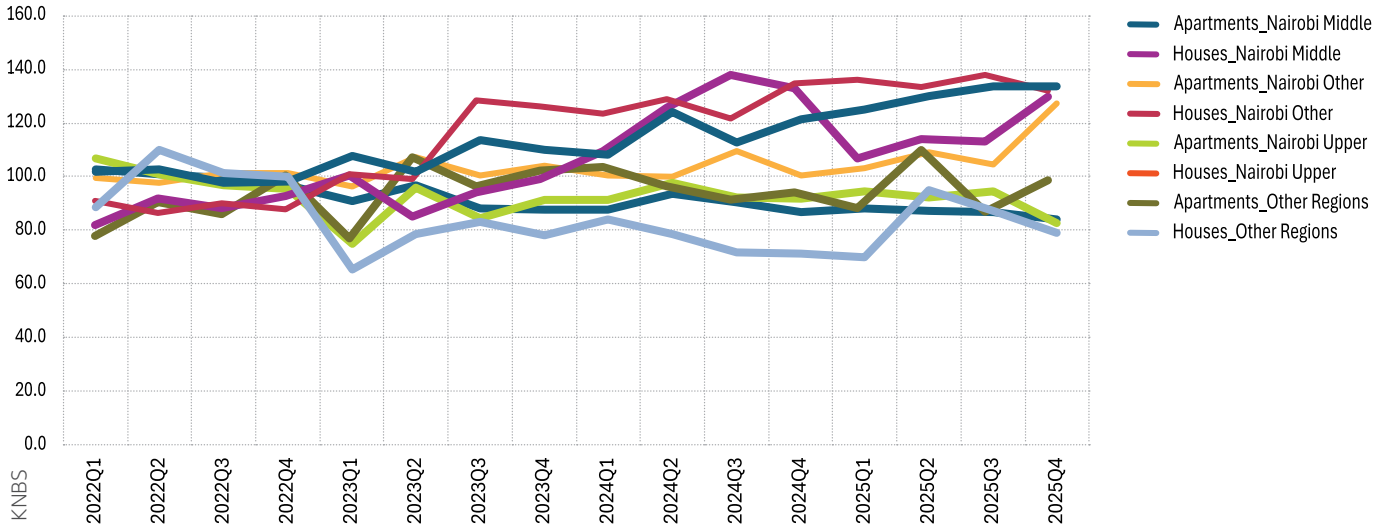


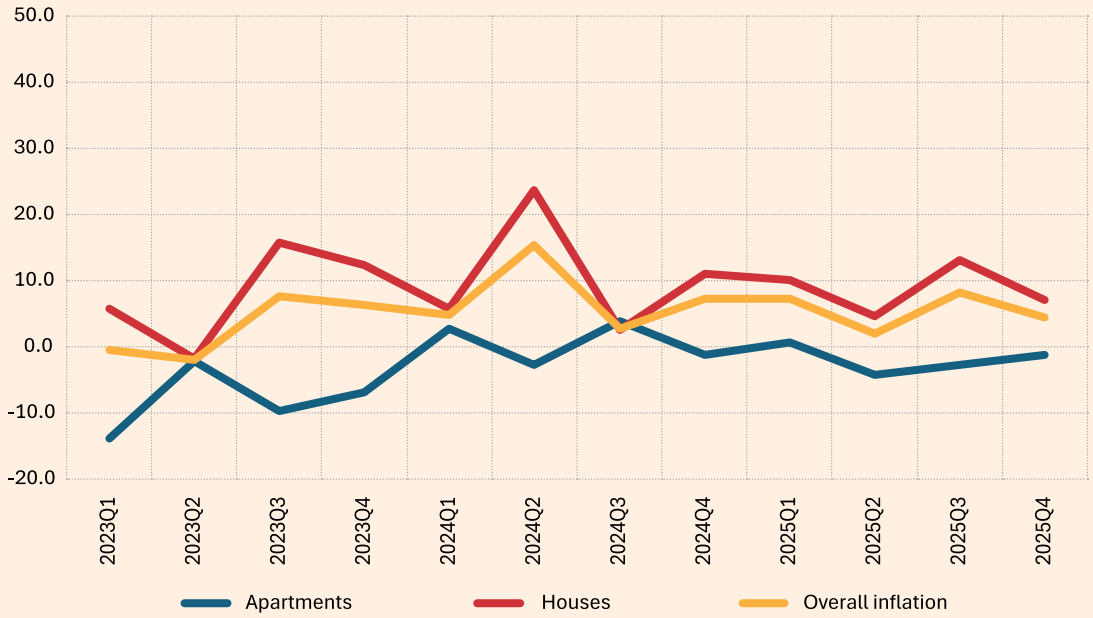
Table 5: Residential Property Price Index by Stratum

Period	Apartments				Houses			
	Nairobi			"Other Regions"	Nairobi			"Other Regions"
	Upper	Middle	Other		Upper	Middle	Other	
2022 Q1	106.6	102.6	99.7	89.2	102.0	93.3	102.4	88.6
2022 Q2	100.9	100.8	97.9	101.7	102.5	103.2	97.6	109.9
2022 Q3	96.9	99.7	101.1	97.3	97.5	99.6	101.1	101.4
2022 Q4	95.5	96.9	101.2	111.8	98.0	103.9	98.9	100.1
2022	**100.0**	**100.0**	**100.0**	**100.0**	**100.0**	**100.0**	**100.0**	**100.0**
2023 Q1	74.8	91.0	96.2	88.2	107.7	111.7	112.4	65.4
2023 Q2	95.8	96.7	107.1	118.8	101.9	96.5	110.4	78.5
2023 Q3	84.4	88.3	100.4	107.5	113.8	105.2	140.2	83.1
2023 Q4	91.3	87.5	104.1	113.6	109.8	110.4	137.8	78.4
2023	**86.6**	**90.9**	**102.0**	**107.0**	**108.3**	**106.0**	**125.2**	**76.3**
2024 Q1	91.5	87.7	100.6	115.0	108.3	120.8	135.2	84.2
2024 Q2	97.7	93.7	99.8	107.6	124.1	137.2	140.4	78.6
2024 Q3	92.2	90.2	109.5	102.5	112.7	149.5	133.3	71.8
2024 Q4	91.8	86.8	100.5	105.7	121.4	144.7	146.2	71.4
2024	**93.3**	**89.6**	**102.6**	**107.7**	**116.6**	**138.1**	**138.8**	**76.5**
2025 Q1	94.6	88.2	103.2	99.4	124.9	118.3	147.9	69.8
2025 Q2	92.5	87.4	109.0	121.4	130.2	125.6	145.2	94.9
2025 Q3	94.6	86.7	104.4	98.0	133.7	124.7	149.7	87.3
2025 Q4	82.6	83.8	127.4	110.1	133.6	141.5	143.5	79.3
2025	**91.1**	**86.6**	**111.0**	**107.2**	**130.6**	**127.5**	**146.6**	**82.8**

4.2 Residential Property Inflation

Residential property inflation as measured by the RPPI fluctuated considerably over the review period, showing a clear divergence between apartments and houses, with apartments experiencing persistent negative or low inflation while houses record strong and sustained inflation. Apartment inflation was mostly negative throughout the period, recording sharp drops such as in 2023-Q1 (–13.8%) and in 2023-Q3 (–9.7%). Apartment inflation continued to decline in 2025 reaching -1.2% in 2025-Q4. House inflation has consistently been higher reaching 15.7% in 2023-Q3, 23.7% in 2024-Q2, and 13.2% in 2025-Q3, partly reflecting high and rising demand for stand-alone homes. However, in 2025-Q4, house inflation was 7.0%. Overall RPPI inflation largely mirrors trends in the housing market, remaining positive and relatively high. The overall RPPI was highest in 2024-Q2 at 15.4% but eased to 4.5% in 2025-Q4.

Figure 5: Residential Property Inflation (%)



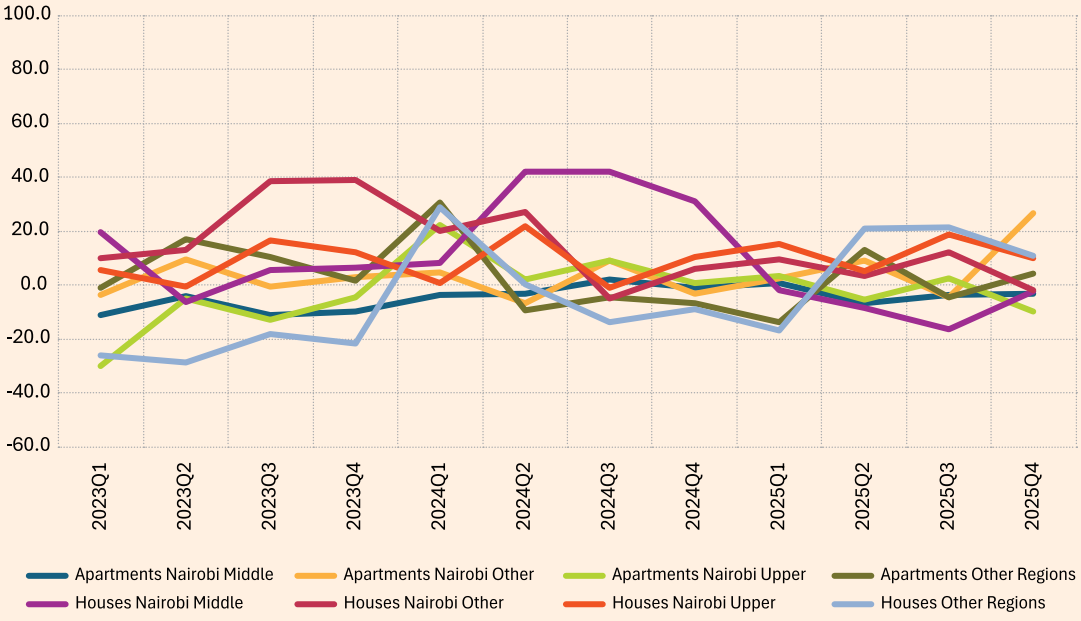
Overall residential property price inflation peaked at 15.4% (2024 Q2) before easing to 4.5% (2025 Q4)

4.2.1 Residential Property Inflation by Stratum

Figure 5 presents the year-on-year inflation for the various strata over the review period. Across strata, RPPI inflation shows sharp divergences between apartments and houses as well as Nairobi and other regions. Apartment prices in Nairobi especially the Nairobi Upper segment exhibited persistent volatility and mostly negative inflation through 2023 to 2025.

Apartment markets outside Nairobi recorded several strong positive spikes, particularly in 2024. Inflation for houses was greater than that of apartments. In particular, the houses in Nairobi Other and Nairobi Middle strata recorded inflation of 39.2% in 2023 Q4 and 42.1% in 2024 Q2, respectively, while inflation for houses out of Nairobi, declined in 2023, but recovered in 2025.

Figure 6: Residential Property Inflation by Stratum (%)



House prices outpaced apartments, with Nairobi Other (39.2% in 2023 Q4) and Nairobi Middle (42.1% in 2024 Q2) recording the highest inflation.

05 DATA QUALITY ASSESSMENT



5.1 Completeness Check

Before compiling the RPPI, a completeness check was conducted to ensure the dataset contained no gaps in the core fields (property characteristics) required for reliable index. A flag variable was generated to automatically identify any observations with missing values in the essential fields, which included price, dwelling type, location, number of bedrooms, listing date, and period.

This allowed for a systematic assessment of data quality. The flagged records were summarized using a table disaggregated by dwelling type and period to pinpoint where missing data occurred and assess whether it was systematic or random as presented in **Table 6**. The affected transactions were 8 and in the first, second and third quarters of 2025. Since the missing values were in the core fields, imputation could not be carried out, and the affected transactions/ properties were then removed to avoid bias in the hedonic model and ensure that observations with valid values on all the variables are included in the compilation of the index.

Table 6: Number of transactions with missing values in core fields by dwelling type and period

Period		Dwelling Type		Total
		House	Apartment	
2022	Qtr 1	0	0	0
	Qtr 2	0	0	0
	Qtr 3	0	0	0
	Qtr 4	0	0	0
2023	Qtr 1	0	0	0
	Qtr 2	0	0	0
	Qtr 3	0	0	0
	Qtr 4	0	0	0
2024	Qtr 1	0	0	0
	Qtr 2	0	0	0
	Qtr 3	0	0	0
	Qtr 4	0	0	0
2025	Qtr 1	0	2	2
	Qtr 2	0	1	1
	Qtr 3	0	5	5
	Qtr 4	0	0	0
	Total	**0**	**8**	**8**

5.2 Duplicates Check

To ensure that each property transaction was uniquely represented in the dataset, a duplicate-removal procedure was applied before compiling the RPPI. Using a combination property name, price, location, period, and number of bedrooms, the procedure systematically scanned the dataset to identify for repeated records within the same period. The duplicated property transactions identified through this procedure were dropped to avoid double counting, which could otherwise distort price levels and bias index estimates.

5.3 Outlier Detection and Correction - Cook's Distance

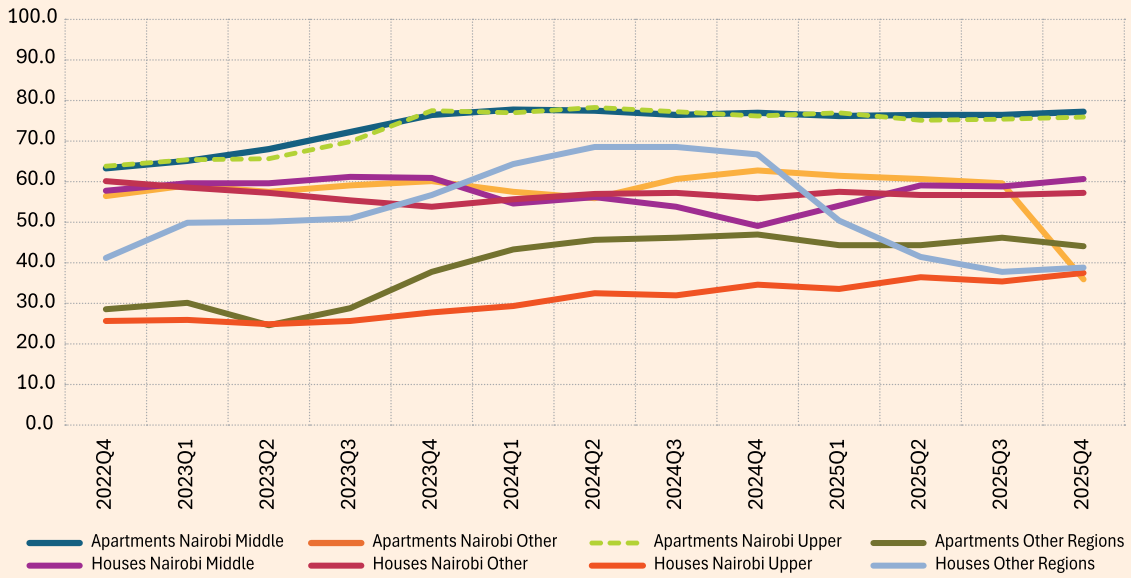
In the compilation of this RPPI, outlier detection and correction are undertaken as part of the data cleaning process prior to the estimation of the rolling window time-dummy hedonic regression models. Property market data may contain atypical or extreme observations partly arising from data entry errors, unusual property characteristics, or irregular transactions. Such observations may exert undue influence on regression estimates and consequently affect the stability and accuracy of the index. To address this, Cook's Distance is applied as a diagnostic measure for identify influential observations in the dataset. Cook's Distance assesses the extent to which individual data points affect the estimated regression coefficients and fitted values. Observations exhibiting disproportionately large Cook's Distance values are influential outliers and excluded from the estimation within each rolling window. This procedure enhances the robustness of the hedonic regression results and ensures that the RPPI reflects underlying market price changes without being distorted by extreme transactions.

5.4 Model Fit Assessment (R-squared Trends)

Figure 6 presents the R-squared across strata and rolling windows. The R-squared values indicate how well the time dummy hedonic models explain variations in residential property prices within each stratum over time. R-squared patterns show strong and stable model performance in apartments in Nairobi. Specifically, apartments in Nairobi Middle and Nairobi Upper segments recorded r-squared of 63.2% and 63.9%, respectively in 2022Q4 (the first rolling window) and remained elevated to 77.3% and 75.7%, respectively in 2025Q4. Within the segment for Nairobi Other apartments, R-squared has been fluctuating moderately around 56 to 63%.

The explanatory power for houses in Nairobi Middle and Nairobi Other remain relatively steady ranging between 50% and 60%. However, the explanatory power for Nairobi Middle declined in 2024Q4 before recovering in 2025. The explanatory power for Nairobi Upper houses show persistently low but gradually improving R-squared values from about 26% to about 36% over the period.

Figure 6: Trend of R-squared across Strata (%)



ANNEX 1:
Median Price (KSh '000) by Stratum and Number of Bedrooms
2022 Q1 - 2023 Q4

Stratum		B/rms	2022-Q1	2022-Q2	2022-Q3	2022-Q4	2023-Q1	2023-Q2	2023-Q3	2023-Q4
Apartments	Nairobi Upper	1	8,500.00	8,550.00	8,000.00	6,800.00	6,000.00	6,500.00	6,000.00	6,300.00
		2	13,500.00	13,500.00	13,000.00	12,500.00	11,000.00	13,500.00	11,250.00	11,450.00
		3	20,000.00	20,000.00	19,500.00	19,000.00	20,500.00	21,000.00	20,000.00	18,700.00
		4	27,500.00	28,000.00	28,000.00	26,000.00	25,000.00	30,000.00	25,500.00	28,500.00
		5+	54,000.00	46,500.00	46,500.00	48,000.00	26,900.00	29,500.00	30,000.00	47,600.00
	Nairobi Middle	1	4,900.00	3,000.00	4,700.00	4,700.00	4,300.00	4,500.00	4,150.00	3,500.00
		2	7,500.00	7,500.00	7,500.00	7,450.00	6,700.00	8,050.00	6,000.00	7,925.00
		3	10,300.00	10,000.00	10,500.00	10,000.00	8,500.00	9,100.00	7,900.00	9,500.00
		4	13,250.00	14,000.00	15,000.00	15,000.00	14,500.00	13,500.00	19,000.00	19,000.00
		5+	..	..	..	20,000.00	24,000.00	..	..	70,000.00
	Other Nairobi	1	15,250.00	13,000.00	11,750.00	9,690.00	5,500.00	6,500.00	5,500.00	6,000.00
		2	18,125.00	16,000.00	11,900.00	12,000.00	9,500.00	12,650.00	11,500.00	12,000.00
		3	21,000.00	19,000.00	19,000.00	18,500.00	18,500.00	23,841,488	19,000.00	20,122.00
		4	29,000.00	28,750.00	26,000.00	23,750.00	24,500.00	30,000.00	26,000.00	25,250.00
		5+	49,000.00	49,000.00	43,000.00	52,000.00	50,000.00	31,000.00	64,500.00	31,500.00
	Other Regions	1	7,500.00	7,000.00	6,750.00	6,500.00	8,300.00	8,500.00	3,900.00	5,500.00
		2	13,000.00	12,875.00	15,000.00	14,000.00	7,500.00	10,250.00	10,950.00	11,000.00
		3	12,500.00	18,750.00	17,750.00	18,250.00	8,750.00	15,750.00	14,200.00	17,500.00
		4	26,500.00	25,000.00	21,250.00	33,000.00	19,750.00	40,000.00	25,000.00	30,000.00
		5+	..	..	105,000.00	95,000.00	27,000.00	..	28,000.00	38,000.00
Houses	Nairobi Upper	2	10,000.00	12,875.00	14,000.00	22,000.00	10,000.00	..	10,950.00	..
		3	20,250.00	23,000.00	24,000.00	23,000.00	15,000.00	33,000.00	26,500.00	16,000.00
		4	40,000.00	42,000.00	40,000.00	42,000.00	40,000.00	36,000.00	38,000.00	40,000.00
		5+	55,000.00	65,000.00	60,000.00	75,000.00	93,500.00	70,000.00	95,000.00	90,000.00
	Nairobi Middle	2	3,700.00	3,500.00	3,500.00	3,500.00	7,600.00	16,000.00	9,980.00	3,200.00
		3	8,000.00	7,500.00	8,000.00	7,500.00	9,950.00	16,250.00	14,490.00	8,500.00
		4	18,000.00	18,000.00	17,500.00	17,250.00	17,000.00	16,500.00	19,000.00	20,000.00
		5+	27,000.00	25,000.00	26,000.00	24,000.00	21,700.00	35,000.00	33,500.00	35,000.00
	Other Nairobi	2	49,000.00	10,500.00	29,750.00	..	79,000.00	..	..	50,399.63
		3	61,500.00	77,000.00	47,500.00	69,500.00	91,500.00	60,000.00	50,000.00	65,000.00
		4	75,000.00	75,000.00	70,000.00	71,000.00	68,000.00	80,000.00	70,000.00	70,000.00
		5+	88,000.00	95,000.00	85,000.00	90,000.00	100,000.00	87,500.00	105,000.00	110,000.00
	Other Regions	2	21,000.00	22,000.00	13,750.00	17,000.00	6,000.00	12,800.00	6,000.00	3,800.00
		3	17,000.00	33,000.00	25,000.00	22,000.00	8,500.00	7,500.00	8,000.00	7,900.00
		4	32,500.00	41,250.00	41,000.00	41,000.00	35,000.00	22,500.00	32,000.00	36,250.00
		5+	65,000.00	92,000.00	77,500.00	75,000.00	35,000.00	55,000.00	40,000.00	44,900.00

ANNEX 1(CONTINUED):
Median Price (KSh '000) by Stratum and Number of Bedrooms
2024 Q1 - 2025 Q4

Stratum		B/rms	2024-Q1	2024-Q2	2024-Q3	2024-Q4	2025-Q1	2025-Q2	2025-Q3	2025-Q4
Apartments	Nairobi Upper	1	6,500.00	7,000.00	7,200.00	6,750.00	7,200.00	7,000.00	6,800.00	6,800.00
		2	11,885.00	12,625.00	12,000.00	12,000.00	12,400.00	12,500.00	12,650.00	11,700.00
		3	18,500.00	22,000.00	19,500.00	20,000.00	20,000.00	19,800.00	19,000.00	18,900.00
		4	25,750.00	25,000.00	25,000.00	26,500.00	25,000.00	26,300.00	27,500.00	25,000.00
		5+	36,500.00	40,000.00	40,250.00	35,000.00	35,000.00	35,600.00	45,000.00	40,000.00
	Nairobi Middle	1	3,960.00	4,000.00	3,900.00	3,600.00	4,000.00	5,000.00	4,250.00	5,300.00
		2	7,500.00	7,900.00	8,200.00	7,400.00	7,400.00	7,800.00	7,700.00	8,000.00
		3	10,500.00	9,700.00	10,500.00	9,900.00	10,500.00	11,500.00	11,000.00	10,500.00
		4	17,000.00	14,000.00	15,000.00	15,500.00	16,000.00	16,250.00	17,000.00	17,000.00
		5+	..	26,000.00	..	25,000.00	24,500.00	23,250.00	22,000.00	25,000.00
	Other Nairobi	1	6,000.00	6,800.00	6,800.00	6,700.00	6,600.00	7,600.00	6,865.00	6,500.00
		2	11,600.00	11,250.00	11,000.00	12,550.00	12,390,535	12,000.00	11,000.00	11,500.00
		3	20,000.00	25,000.00	22,000.00	20,000.00	20,500.00	19,900.00	20,000.00	18,000.00
		4	25,750.00	28,000.00	25,000.00	28,750.00	32,000.00	27,000.00	26,250.00	26,000.00
		5+	38,750.00	99,250.00	29,750.00	32,000.00	40,000.00	76,000.00	80,000.00	50,000.00
	Other Regions	1	5,500.00	5,200.00	5,700.00	6,000.00	6,000.00	7,625.00	4,450.00	5,800.00
		2	11,000.00	9,750.00	8,000.00	8,500.00	8,700.00	7,750.00	9,000.00	9,450.00
		3	17,000.00	14,400.00	13,500.00	15,000.00	11,500.00	17,000.00	12,500.00	14,000.00
		4	27,500.00	19,900.00	29,000.00	34,000.00	29,500.00	28,250.00	25,000.00	23,000.00
		5+	42,400.00	29,050.00	42,400.00	50,000.00	35,000.00	..	90,000.00	58,000.00
Houses	Nairobi Upper	2	21,500.00	..	13,000.00	8,950.00	11,500.00	11,500.00	8,000.00	8,000.00
		3	24,500.00	59,750.00	31,500.00	22,000.00	21,000.00	24,800.00	23,450.00	23,500.00
		4	45,000.00	46,500.00	61,000.00	58,000.00	46,000.00	51,000.00	57,000.00	60,000.00
		5+	85,000.00	72,500.00	85,000.00	90,000.00	93,000.00	98,000.00	87,000.00	86,500.00
	Nairobi Middle	2	6,500.00	6,500.00	6,500.00	9,000.00	8,075.00	8,375.00	6,000.00	7,483.33
		3	8,500.00	8,200.00	8,500.00	9,500.00	8,850.00	8,700.00	8,700.00	8,275.00
		4	18,000.00	20,950.00	18,000.00	22,000.00	20,000.00	18,500.00	19,000.00	18,000.00
		5+	26,000.00	39,000.00	31,000.00	29,000.00	30,000.00	23,000.00	27,000.00	24,650.00
	Other Nairobi	2	..	..	63,000.00	56,699.00	59,850.00	58,274.00	..	35,000.00
		3	41,500.00	56,850.00	69,000.00	62,925.00	65,692,500	64,308.00	65,000,250	45,000.00
		4	69,500.00	75,000.00	75,000.00	78,000.00	77,000.00	75,000.00	71,000.00	75,000.00
		5+	100,000.00	126,500.00	109,000.00	120,000.00	120,000.00	110,000.00	129,000.00	120,000.00
	Other Regions	2	9,800.00	6,500.00	5,750.00	6,875.00	7,500.00	18,000.00	8,000.00	9,100.00
		3	9,000.00	8,500.00	10,000.00	18,000.00	16,740.00	23,740.00	25,000.00	25,000.00
		4	44,000.00	22,000.00	27,000.00	36,500.00	28,000.00	40,000.00	45,000.00	30,000.00
		5+	52,000.00	31,500.00	51,000.00	61,500.00	69,000.00	78,500.00	78,000.00	73,000.00







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