



# HOUSING PRICE INDEX

AUGUST 2020

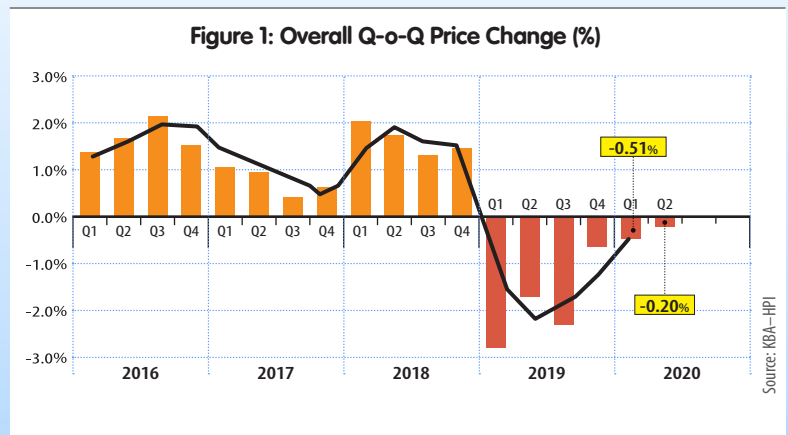
ISSUE 23

## House Prices Gradually Crawl out of the Red

**H**ouse prices are still in the negative territory albeit with a trend that signals stabilization following a sharp reduction seen in 2019.

According to the Kenya Bankers Association - House Price Index (KBA-HPI), house prices contracted by 0.20 percent in the second quarter of 2020, marginally reversing the deceleration from the 0.51 percent contraction in the first quarter of 2020.

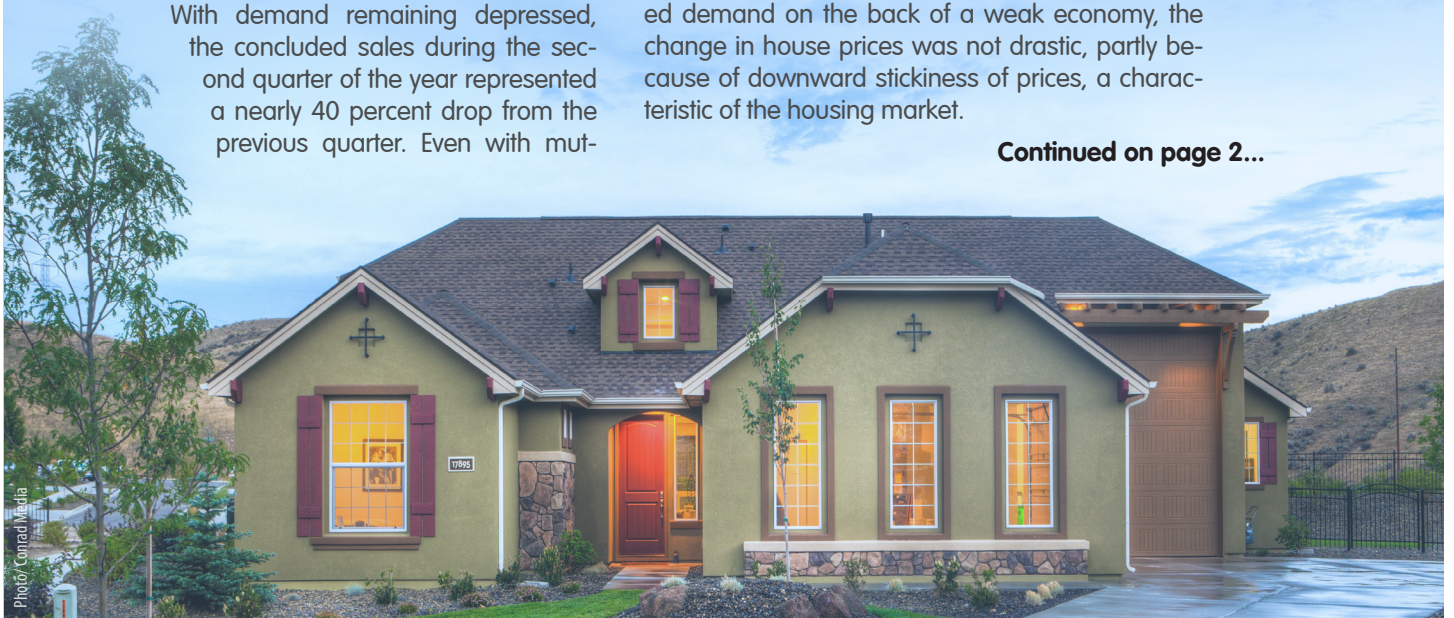
The stagnation of house prices at negative territory broadly reflects the headwinds in the economy that have influenced both demand and supply characteristics of the market.



With demand remaining depressed, the concluded sales during the second quarter of the year represented a nearly 40 percent drop from the previous quarter. Even with muted

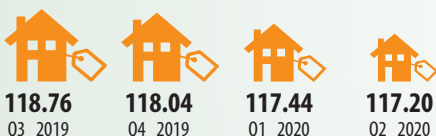
demand on the back of a weak economy, the change in house prices was not drastic, partly because of downward stickiness of prices, a characteristic of the housing market.

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## The Numbers at a Glance

**1** Growth in House prices remained subdued in Quarter 1 of 2020.



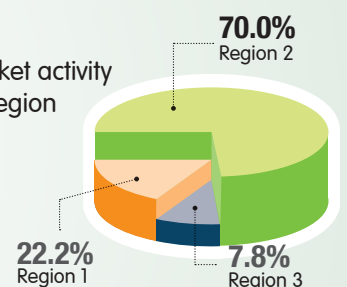
\* Based on Base period Q1\_2013

**2** The main prices drivers were sensitive to:

- Plinth area (size)
- No. of Bedrooms
- No. of Bathrooms
- Location (Region)



**3** Market activity by region



## Technical Note

The index follows a Laspeyres index method. In this method, the index is computed by getting the ratio of the estimated current quarter price from the hedonic method multiplied by the weights of the preceding quarter to the price of the preceding quarter multiplied by the respective weights of that quarter.

The weights of the quantitative variables are obtained by getting their respective mean values. For the dummy variables however, their weights are computed as the proportions of the number of houses possessing a certain attribute to the total number of houses. Thus the index is computed by the formula:

$$Index = \sum_{i=1}^n w_i \frac{\hat{P}_1}{\hat{P}_0} = \frac{\sum_{i=1}^n w_i \hat{P}_1}{\sum_{i=1}^n w_i \hat{P}_0}$$

Where;  $\hat{P}_1$  is the shadow price from the estimated hedonic function for the current quarter;

$\hat{P}_0$  is the shadow prices from the estimated hedonic function for the preceding quarter;

And  $w_i$  are the weights of the respective variables for the preceding quarter.



# House Prices Gradually Crawling out of the Red

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At the same time, the sharp correction in prices during 2019 engendered subdued investments thereby reflecting limited supply accompanying the low demand. The broader construction and real estate sector, while showing positive growth during the first quarter of 2020, manifested the weaknesses in the broader economy with its expansion of 5.3 percent being 0.38 percentage points lower than a similar period last year.

The performance of the sector was on the back of some of the leading indicators remaining on the positive territory, but still subdued. For instance, cement consumption (a supply side proxy) continued to grow. Nonetheless, cement consumption was linked more to other public sector oriented construction projects than to housing. The sector received mild demand support through the growth in credit although with the growth remaining sub-optimal.

On the back of the outlined broader developments in the sector, there was a decline in the importation of construction materials mainly fabricated metal products and cement. The effect of the decline on the property development is anticipated to come with a lag, and its

out turn can only be evident in subsequent quarters.

Based on the Laspeyres Index methodology (See **Technical Note**), the house price growth sustained a downward trend (**Figure 2**).

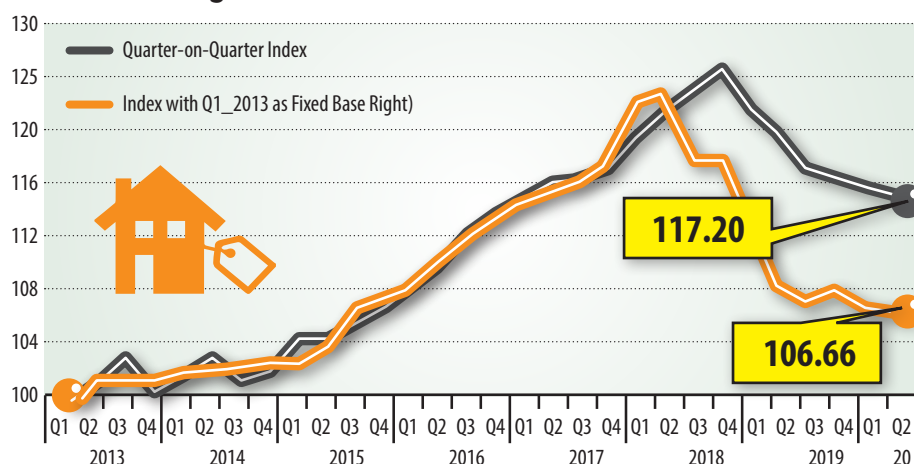
In quarter two of 2020, based on the moving base index, the KBA-HPI stood at 117.20 compared to 117.44 in the quarter one of 2020. The fixed base index stood at 106.66 in quarter two from 106.87 percent in quarter one of 2020.

**Table 1: Price Movement Series**

| Period  | Index with a fixed base | Index with a moving base |
|---------|-------------------------|--------------------------|
| Q1_2018 | 123.83                  | 121.29                   |
| Q2_2018 | 124.78                  | 123.42                   |
| Q3_2018 | 119.38                  | 125.10                   |
| Q4_2018 | 119.48                  | 127.00                   |
| Q1_2019 | 114.30                  | 123.56                   |
| Q2_2019 | 109.17                  | 121.47                   |
| Q3_2019 | 108.02                  | 118.76                   |
| Q4_2019 | 107.86                  | 118.04                   |
| Q1_2020 | 106.87                  | 117.44                   |
| Q2_2020 | 106.66                  | 117.20                   |

\* Based on Base period Q1\_2013

**Figure 2: KBA – House Price Index Evolution**



## House Price Drivers Stable

In choosing a house, buyers consider a variety of attributes, including the plinth area, number of rooms, type of house, location, and other attributes.

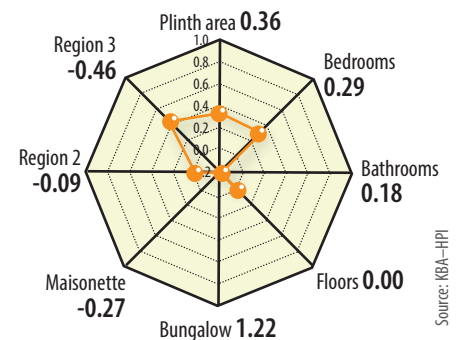
The development of the quarter-on-quarter index tracking changes in house prices is based on estimating a hedonic function.

The hedonic regression estimates for the quarter two of 2020 are provided in **Table 2** (See **Appendix**), and the graphical representation of the effects of attributes are illustrated in **Figure 3**. For comparison purposes, quarter four of 2019 and quarter one of 2020 estimates are presented in **Table 3** and **4** (See **Appendix**).

The drivers of house prices in quarter two of 2020 were broadly stable and consistent with those of prior quarters. The coefficients on plinth area, number of bedrooms, bathrooms and region house is located being are statistically significant. This suggests that other than specific house attributes underpinning house prices neighbourhood attributes continue to play a significant role with prices of houses in **Region 3** pricey compared to **Region 1** and **Region 2**.

Unlike estimates of previous periods, some house attributes during the quarter do not enter the model give that they are highly correlated. Even so, that is not to imply that they do not influence house prices.

**Figure 3: Effects of Structural House Characteristics on Property Price**



Source: KBA-HPI

## Apartments Back to Dominance

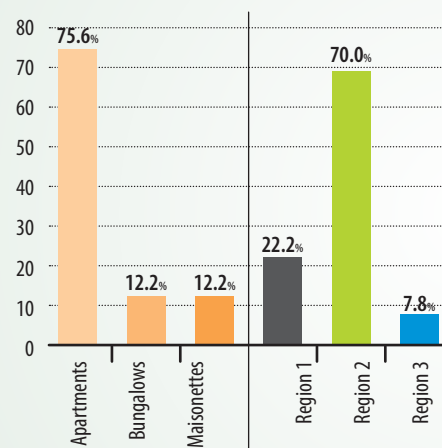
Homebuyers' preferences were characterized by a shift back to apartments as demand for townhouses appeared to fizzle out.

In quarter two of 2020, demand for apartments more than doubled accounting for 75.6 percent (**Figure 4a**) compared to 33 percent of the concluded sales in quarter one. Bungalows and Maisonettes jointly accounted for 24.4 percent of the concluded sales, with the proportion of the pie being split in half (i.e. 12.2 percent each) compared to 12 percent and 10 percent respectively in quarter one.

The above dynamics: a rise in both the demand for apartments and bungalows and a decline in Maisonettes is suggestive of a market leaning more in search for affordability among home buyers.

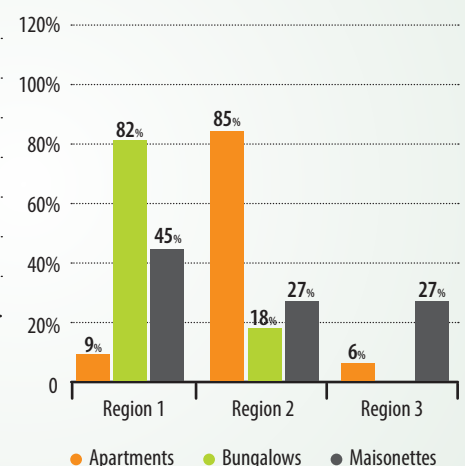
In terms of regional distribution activity was concentrated in **Region 2**, accounting for 75 percent of the concluded sales (**Figure 4a**) compared to 78 percent in quarter one. Even though this represents a decline, activity in this region is still substantial.

**Figure 4: Housing Market Activity by Region and House Type**



Source: KBA-HPI

**Figure 4(b): Housing activity concentrated within Region 2**



On the other hand, concluded house sales in **Region 1** and **Region 3** accounted for 22.2 percent and 7.8 percent compared to 16 percent and 7 percent respectively in quarter one of 2020, reinforcing buyers' search for affordability.

An examination of the distribution of the type of house by region reveals that apartments dominated in **Region 2**, while bungalows and Maisonettes dominated in **Region 1** and **Region 3** respectively (**Figure 4b**).



**Table 2: Housing Price Index Drivers for Quarter 2 of 2020**

| Source   | SS    | df    | MS   |
|----------|-------|-------|------|
| Model    | 8.35  | 8.00  | 1.04 |
| Residual | 6.02  | 81.00 | 0.06 |
| Total    | 14.37 | 89.00 | 0.07 |

No. of Obs. = 90  
 $F(8, 81) = 14.060$   
 Prob > F = 0.000  
 R-squared = 0.581  
 Adj R-squared = 0.540  
 Root MSE = 0.273

| Natural logarithm of Property Value | Coef   | Std. Err. | t - stats | P> t  | [95% Conf. Interval] |        |
|-------------------------------------|--------|-----------|-----------|-------|----------------------|--------|
| Constant                            | 14.323 | 0.581     | 22.400    | 0.000 | 11.866               | 14.180 |
| Plinth area (LN)                    | 0.358  | 0.084     | 4.270     | 0.000 | 0.191                | 0.525  |
| No. of bedrooms                     | 0.294  | 0.063     | 4.690     | 0.000 | 0.169                | 0.418  |
| No. of bathrooms                    | -0.180 | 0.084     | -2.150    | 0.035 | -0.348               | -0.013 |
| No. of floors                       | 0.003  | 0.058     | 0.060     | 0.955 | -0.112               | 0.118  |
| <b>House Type Dummy</b>             |        |           |           |       |                      |        |
| housetype 1                         | -0.180 | 0.310     | -0.580    | 0.564 | -0.797               | 0.438  |
| housetype 2                         | -0.168 | 0.146     | -1.150    | 0.252 | -0.458               | 0.122  |
| <b>Regional Dummy</b>               |        |           |           |       |                      |        |
| Region 1                            | 0.003  | 0.119     | 0.020     | 0.982 | -0.233               | 0.239  |
| Region 3                            | 0.454  | 0.151     | 3.000     | 0.004 | 0.153                | 0.754  |



Housing Price Index  
 Quarter 2, 2020  **117.20**

**Table 3: Housing Price Index Drivers for Quarter 1 of 2020**

| Source   | SS           | df            | MS          |
|----------|--------------|---------------|-------------|
| Model    | 70.88        | 10            | 7.09        |
| Residual | 7.83         | 136           | 0.06        |
| Total    | <b>78.70</b> | <b>146.00</b> | <b>0.54</b> |

No. of Obs. = 147  
 $F(12, 255) = 123.130$   
 Prob > F = 0.000  
 R-squared = 0.901  
 Adj R-squared = 0.893  
 Root MSE = 0.240

| Natural logarithm of Property Value | Coef   | Std. Err. | t - stats | P> t  | [95% Conf. Interval] |        |
|-------------------------------------|--------|-----------|-----------|-------|----------------------|--------|
| plinth area                         | 0.100  | 0.058     | 1.720     | 0.088 | -0.015               | 0.214  |
| No. of bedrooms                     | 0.516  | 0.180     | 2.860     | 0.005 | 0.159                | 0.873  |
| No. of bathrooms                    | 0.127  | 0.160     | 0.800     | 0.427 | -0.189               | 0.444  |
| No. of floors                       | -0.782 | 0.075     | -10.400   | 0.000 | -0.930               | -0.633 |
| <b>Locational Dummy</b>             |        |           |           |       |                      |        |
| Region 2                            | -0.087 | 0.087     | -0.990    | 0.323 | -0.260               | 0.086  |
| Region 3                            | 0.459  | 0.104     | 4.420     | 0.000 | 0.253                | 0.664  |
| <b>Type of House</b>                |        |           |           |       |                      |        |
| Bungalows                           | -1.215 | 0.303     | -4.010    | 0.000 | -1.814               | -0.616 |
| Maisonette                          | -0.269 | 0.263     | -1.020    | 0.308 | -0.788               | 0.250  |
| <b>Other Drivers</b>                |        |           |           |       |                      |        |
| Presence of generator               | 0.439  | 0.142     | 3.100     | 0.002 | 0.159                | 0.719  |
| presence of a gate house            | -0.240 | 0.254     | -0.950    | 0.345 | -0.742               | 0.261  |
| Constant                            | 14.381 | 0.615     | 23.370    | 0.000 | 13.163               | 15.600 |



Housing Price Index  
 Quarter 1, 2020  **117.44**

**Table 4: Housing Price Index Drivers for Quarter 4 of 2019**

| Source   | SS           | df         | MS          |
|----------|--------------|------------|-------------|
| Model    | 69.00        | 9          | 7.67        |
| Residual | 8.07         | 119        | 0.07        |
| Total    | <b>77.07</b> | <b>128</b> | <b>7.73</b> |

No. of Obs. = 129  
 $F(12, 255) = 113.090$   
 Prob > F = 0.000  
 R-squared = 0.895  
 Adj R-squared = 0.887  
 Root MSE = 0.260

| Natural logarithm of Property Value | Coef   | Std. Err. | t - stats | P> t  | [95% Conf. Interval] |        |
|-------------------------------------|--------|-----------|-----------|-------|----------------------|--------|
| Plinth area                         | 0.439  | 0.082     | 5.340     | 0.000 | 0.276                | 0.602  |
| No. of Bedrooms                     | 0.190  | 0.046     | 4.130     | 0.000 | 0.099                | 0.282  |
| No. of Bathrooms                    | 0.099  | 0.087     | 1.140     | 0.255 | -0.073               | 0.272  |
| No. of Floors                       | -0.762 | 0.283     | -2.690    | 0.008 | -1.323               | -0.201 |
| Age of house                        | 0.000  | (omitted) |           |       |                      |        |
| <b>Locational Dummy</b>             |        |           |           |       |                      |        |
| Region 2                            | 0.499  | 0.123     | 4.050     | 0.000 | 0.255                | 0.743  |
| Region 3                            | 0.600  | 0.113     | 5.280     | 0.000 | 0.375                | 0.824  |
| <b>Type of House</b>                |        |           |           |       |                      |        |
| Apartments                          | -0.636 | 0.224     | -2.840    | 0.005 | -1.078               | -0.193 |
| Bungalows                           | -0.928 | 0.248     | -3.750    | 0.000 | -1.418               | -0.438 |
| Maisonette                          | -      | -         | -         | -     | -                    | -      |
| <b>Other Drivers</b>                |        |           |           |       |                      |        |
| Presence of S. Pool                 | 9.003  | 3.618     | 2.490     | 0.014 | 1.838                | 16.168 |
| Constant                            | 14.381 | 0.615     | 23.370    | 0.000 | 13.163               | 15.600 |



Housing Price Index  
 Quarter 4, 2019 **+ 118.04**

**Table 5: Inter quarter Sub-Regional indices (Moving Base): Q2-2013 – Q2-2020**

|                | Region 1    |            |              | Region 2    |            |              | Region 3    |            |              |
|----------------|-------------|------------|--------------|-------------|------------|--------------|-------------|------------|--------------|
|                | Apart-ments | Bunga-lows | Maison-ettes | Apart-ments | Bunga-lows | Maison-ettes | Apart-ments | Bunga-lows | Maison-ettes |
| <b>Q3-2013</b> | 99.67       | 100.40     | 99.40        | 102.44      | 100.99     | 100.49       | 98.56       | 105.20     | 102.09       |
| <b>Q4-2013</b> | 100.74      | 102.82     | 99.38        | 101.80      | 100.82     | 98.81        | 103.75      | 103.95     | 100.32       |
| <b>Q1-2014</b> | 100.45      | 99.38      | 99.67        | 101.63      | 100.91     | 100.91       | 97.70       | 102.58     | 102.58       |
| <b>Q2-2014</b> | 100.50      | 99.67      | 99.54        | 100.75      | 101.75     | 101.27       | 96.70       | 102.74     | 103.32       |
| <b>Q3-2014</b> | 99.41       | 100.31     | 100.33       | 100.63      | 101.27     | 99.91        | 98.90       | 102.98     | 100.56       |
| <b>Q4-2014</b> | 97.48       | 99.29      | 105.21       | 97.82       | 101.98     | 99.61        | 104.54      | 104.36     | 100.62       |
| <b>Q1-2015</b> | 95.20       | 101.54     | 100.95       | 98.67       | 102.01     | 100.25       | 104.67      | 104.92     | 100.71       |
| <b>Q2-2015</b> | 102.92      | 102.78     | 100.53       | 101.11      | 102.05     | 100.77       | 105.23      | 104.91     | 102.51       |
| <b>Q3-2015</b> | 103.54      | 103.04     | 101.02       | 104.81      | 102.99     | 101.51       | 105.54      | 105.43     | 104.08       |
| <b>Q4-2015</b> | 105.23      | 104.57     | 104.66       | 104.84      | 103.47     | 102.43       | 106.25      | 105.37     | 105.26       |
| <b>Q1-2016</b> | 105.56      | 106.49     | 104.87       | 104.22      | 103.30     | 102.58       | 107.05      | 105.96     | 105.37       |
| <b>Q2-2016</b> | 103.48      | 104.08     | 102.96       | 100.19      | 100.30     | 100.93       | 101.23      | 100.96     | 100.27       |
| <b>Q3-2016</b> | 104.81      | 104.92     | 104.02       | 103.62      | 101.51     | 102.62       | 103.07      | 102.59     | 104.29       |
| <b>Q4_2016</b> | 106.82      | 105.05     | 104.83       | 105.04      | 102.61     | 103.60       | 105.72      | 102.94     | 105.94       |
| <b>Q1_2017</b> | 108.63      | 105.81     | 104.96       | 106.75      | 102.81     | 104.27       | 107.49      | 103.27     | 106.24       |
| <b>Q2_2017</b> | 109.73      | 105.97     | 105.22       | 107.86      | 102.96     | 104.27       | 108.65      | 103.83     | 106.70       |
| <b>Q3_2017</b> | 110.04      | 106.08     | 105.63       | 107.93      | 103.17     | 105.08       | 109.38      | 103.94     | 107.08       |
| <b>Q4_2017</b> | 111.53      | 106.86     | 106.04       | 108.61      | 103.51     | 105.84       | 110.63      | 104.04     | 107.75       |
| <b>Q1_2018</b> | 112.39      | 107.16     | 108.82       | 110.07      | 105.58     | 108.03       | 111.41      | 107.04     | 110.08       |
| <b>Q2_2018</b> | 113.30      | 107.92     | 109.49       | 110.96      | 106.33     | 108.70       | 112.31      | 107.80     | 110.76       |
| <b>Q2_2019</b> | 103.58      | 100.58     | 104.35       | 102.83      | .          | .            | .           | .          | 107.41       |
| <b>Q3_2019</b> | 100.97      | 114.91     | 98.75        | 95.66       | 99.22      | 99.84        | 99.36       | .          | 102.67       |
| <b>Q4_2019</b> | 102.6       | 87.15      | 101.27       | .           | .          | 101.16       | 99.04       | .          | .            |
| <b>Q1_2020</b> | 103.07      | 101.38     | 103.91       | 102.03      | 100.14     | 102.35       | 99.96       | 104.29     | 103.92       |
| <b>Q2_2020</b> | 103.04      | 101.22     | 104.85       | 102.10      | 100.57     | 102.14       | 99.91       | .          | 103.86       |

\* Definition of the Sub-regions listed overleaf \*\* Based on Base period Q1\_2013

**Note:** dot (.) implies that the number of observations is insufficient to estimate the hedonic function and consequently the index.

## THE DEFINITION OF THE SUB-REGIONS



### REGION 1

Athi River, Mlolongo, Mavoko, Nakuru, Ngong, Ruaka, Syokimau, Embakasi, Kahawa Wendani, Thika, Mtwapa, Utange, Kitengela, Kiambeni, Nyeri, Likoni, Eldoret, Ruiru, Kilifi, Thika road (Kasarani, Roysambu, Ruaraka), Meru, Bungoma.



### REGION 2

Thindigua (Kiambu Road), Kiambu, South B, South C, Kabete, Komarock, Imara Daima, Membedley, Buruburu, Rongai, Waiyaki Way (Uthiru, Regent, Kinoo, Kikuyu), Mbagathi road, Ngong Road, Langata.



### REGION 3

Kileleshwa, Kilimani, Lavington, Westlands, Spring Valley, Riverside, Milimani (Kisumu), Milimani (Nakuru), Runda, Karen, Garden Estate, Parklands, Ridgeways, Muthaiga, Loresho, Kitisuru, Adams Arcade, Nyali, Mountain View, Nyari.

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