Real Estate Price Dynamics in India: An Overview of Residex Index with Special Reference to Kochi

Mr. Siby Abraham[1], Dr. N Ajith Kumar[2]

[1]Assistant Professor,Department of Economics and Research Centre,Sacred Heart College, Thevara,Kochi, India.
[2]Research Guide, Mahatma Gandhi University, Department of Economics and Research Centre, Sacred Heart College, Thevara, Kochi, India.
Corresponding Author:Mr. Siby Abraham

Abstract: *The housing industry of India is growing at a faster rate especially in urban areas. A large population base, rising disposable income and liberalised market regime leads to rapid progress of this sector. In India, there exists a huge gap between the demand and supply of residential housing. This leads to the unprecedented rise of price in the sector. It is essential to track the price movements in the real estate sector so that adequate measures can be adopted to ensure smooth functioning of the economy. National Housing Bank (NHB) publishes Residex, the residential real estate price index which is considered as the first official housing price index in the country. The study makes an effort to analyse the housing price trend in major Indian cities based on NHB Residex with a focus on Kochi in Kerala. The study reveals that there is an overall uptrend in the real estate price in major cities of India with a few exceptions. Housing price in Kochi registered negative growth till 2015; however the city has recouped at least 20 percent from the value recorded in Q4 2013 based on the revamped Residex index.*
Key words:*Real estate, price index, NHB Residex, HPI @ Assessment Price.*

I. Introduction

Real estate represents a major asset class that forms a major component of the national wealth.India has witnessed an unprecedented growth in the real estate sector in the new millennium. This has prompted many private players such as Propequity, Propstack and Ressex to establish real estate data analytics platforms in India.Presently, there are many appraisal based indices that represent both residential and commercial realty price in the country. However, the most reliable and authentic source of real estate price in India in the present scenario is the NHB Residex index, published quarterly by the National Housing Bank (NHB), the wholly owned subsidiary of Reserve Bank of India. It is India's first official housing price index (National Housing Bank, 2018).

Significance of the Study

A study on real estate price trends is notable in the sense that this sector is the second-largest employer in Indiaafter agriculture and is slated to grow at 30 per cent over the next decade (India Brand Equity Foundation, 2018). It is important for all the real estate investors to understand the local market dynamics and price trends. They also should have an overview of national as well as international real estate trends. A comprehensive study will decipher the gap between actual demand and speculative demand in the sector. It can provide a better understanding of market trends across various real estate asset classes. The study will throw some light on various investment avenues available in India that may help in many ways. So an in depth study of the issue is of national importance.

Statement of the Problem

There are a number of features that distinguish real estate from assets like stocks, bonds and gold. Real estate markets are relatively illiquid, with most owners holding on to assets for long periods of time especially for residential purpose. Most often, purchases of property tend to be reliant on external debt finance and real estate is usually used as collateral in such financing arrangements. The past couple of decades have seen price booms in real estate markets in a number of countries, as well as collapses in some cases.

Assets like stocks and gold have an organised way of price determination with the interactions of market demand-supply forces. However, in the case of real estate assets, market mechanism fails since the price varies from time to time and from place to place. It doesn't have a uniform size or shape. The irregularity of

transactions and the relatively lower liquidity are other problems associated with real estate assets(Geltner, 2014). Again, there is wide discrepancy between the market price and the fair value decided by various state governments in India. In short, the heterogeneity of various real estate assets makes it's pricing a complex task. All these issues have prompted market experts and analysts to prepare real estate indices.

Objectives of the Study
1. To provide an overview of NHB Residex
2. To analyse the housing price trend in India with the help of NHB Residex index
3. To examine the housing price trend in Kochi using NHB Residex.

II. Literature Review

Price indices are measuring the relative changes in the price of an asset or a commodity over a period of time compared with the prices in a certain year (base year) as standard (Business Dictionary, 2018). Residential real estate price movements is of vital importance to the study of various economies and the pattern of urban growth. It is therefore very important to closely monitor housing price trends on a regular basis. Apart from serving as an indicator for housing price trends, the housing price indices provide an analytical tool for estimating fluctuations in the rates of mortgage and measure the affordability of housing (National Housing Bank, 2018).

The price indexing of real estate transactions that attempts to control for the heterogeneity issue in a scientific and statistically sophisticated manner has become widespread only in the past generation, and mainly focused on single-family housing. The price indices on investment property transactions have been developed primarily only since the turn of the present century (Geltner, 2014).The nature of housing sector is an indicator of economic welfare in an economy. It is essential to track the price movements to estimate the volatility in the housing market so that adequate measures can be adopted to ensure smooth functioning of the economy. Due to the heterogeneity of real estate assets, it becomes a daunting task to build a real estate price index (Gothi, 2013).

III. Data and Methodology

The study is based on secondary data; mainly NHB Residex; the real estate price index published by National Housing Bank.National Housing Bank used The Price Relative Method (Modified Laspeyres Approach) in the construction of Residex index till Q1 2015. Later, the Laspeyres Method has been used for the calculation of HPI@Assessment Price. The NHB Residex of major cities during 2007-15 are used in this study. This helps to analyse the overall residential real estate price trends in major cities in India. The Residex index for various zones of Kochi are also used to estimate price trend. The updated Residex (HPI @ Assessment Prices) of Kochi from Q4 2013 to Q1 2018 are mentioned to represent the latest developments of price movements in the city.

IV. Limitations of the Study

The study is based on NHB Residex index figures and the limitations which are applicable to the Residex index would have influence on the findings. NHB Residex takes into consideration only the residential segment of the real estate sector. The study is limited to the analysis of real estate price trends in 15 major cities in India with a focus on Kochi city in Kerala and it may not reflect the real estate price trend in all the other cities of India.

V. NHB Residex

NHB Residex, India's first official real estate price index was formulated under the guidance of a Technical Advisory Committee (TAC) comprising of various stakeholders from the housing market. The index was launched in July, 2007 and updated periodically till March 2015, taking 2007 as the base year. From January 2008 to December 2009, Residex index was published half-yearly. The Residex data for 15 major cities are published till the end of 2009. Later in Q1 2012, five more cities and from Q1 2013 onwards, another 6 cities were added to the Residex list. From January 2010 onwards, the index published data on a quarterly basis till March 2015. During this period, the coverage of NHB Residex was expanded gradually to 26 cities.Initially, NHB Residexwas computed using the market data. Later, from 2010 onwards, the computation was based on valuation data received from commercial banks and housing finance companies (HFCs). Thereafter, data was sourced from Central Registry of Securitisation Asset Reconstruction and Security Interest of India (CERSAI) from 2013 to 2015 (National Housing Bank, 2018). Modified Laspeyres method is used to compute the index.

Table: 1 NHB Residex for major cities, 2007-2011

| CITIES | Index | Jan-Jun | Jul-Dec | Jan-Jun | Jul-Dec | Jan-Mar | Apr-Jun | Jul-Sep | Oct-Dec | Jan-Mar | Apr-Jun | Jul-Sep | Oct-Dec |
	2007	H1 (2008)	H2 (2008)	H1 (2009)	H2 (2009)	Q1 (2010)	Q2 (2010)	Q3 (2010)	Q4 (2010)	Q1 (2011)	Q2 (2011)	Q3 (2011)	Q4 (2011)
Ahmedabad	100	106	100	127	128	113	131	141	164	172	169	163	167
Bangalore	100	73	76	58	59	64	68	74	101	89	92	93	100
Bhopal	100	139	151	139	162	158	153	166	173	198	224	208	211
Chennai	100	104	95	120	143	164	183	210	214	231	248	271	296
Delhi	100	124	130	121	113	106	110	115	123	142	147	154	167
Hyderabad	100	96	92	65	81	81	82	87	87	88	91	84	79
Kolkata	100	114	140	162	185	165	176	191	213	204	194	191	190
Mumbai	100	112	117	124	126	134	160	167	173	173	181	194	193
Patna	100	103	100	107	119	127	124	148	146	143	146	141	140
Pune	100	101	97	103	117	124	135	140	141	142	150	169	184
Faridabad	100	100	121	139	145	154	152	170	176	210	220	206	218
Jaipur	100	119	115	71	63	66	61	63	69	68	64	65	64
Lucknow	100	103	102	104	119	112	133	148	152	156	160	154	165
Surat	100	101	98	111	123	109	136	128	133	140	149	139	152
Kochi	100	106	95	90	83	79	83	97	101	104	107	97	82

Source: National Housing Bank

Table: 2 NHB Residex for major cities, Q12012 to Q12015

| CITIES | Jan-Mar | Apr-Jun | Jul-Sep | Oct-Dec | Jan-Mar | Apr-Jun | Jul-Sep | Oct-Dec | Jan-Mar | Apr-Jun | Jul-Sep | Oct-Dec | Jan-Mar |
	Q1 (2012)	Q2 (2012)	Q3 (2012)	Q4 (2012)	Q1 (2013)	Q2 (2013)	Q3 (2013)	Q4 (2013)	Q1 (2014)	Q2 (2014)	Q3 (2014)	Q4 (2014)	Q1 (2015)
Ahmedabad	164	174	180	191	192	186	191	197	209	213	217	215	215
Bangalore	92	100	98	106	109	108	107	111	107	108	109	113	115
Bhopal	204	207	206	216	230	227	220	223	226	229	232	233	239
Chennai	304	309	312	314	310	303	318	330	349	355	362	366	364
Delhi	168	175	178	195	202	199	190	196	199	193	189	189	190
Hyderabad	86	85	84	90	88	84	88	93	95	95	93	95	97
Kolkata	191	196	191	209	197	189	199	196	206	211	209	215	212
Mumbai	190	197	198	217	222	221	222	222	229	233	238	240	238
Patna	129	140	138	151	152	147	150	159	150	154	153	157	160
Pune	181	200	201	205	221	219	219	235	232	241	242	247	251
Faridabad	217	217	216	205	207	202	204	209	209	211	216	222	224
Jaipur	80	78	85	87	112	110	108	105	101	102	101	103	102
Lucknow	164	171	175	189	183	187	191	185	194	193	196	198	200
Surat	144	145	138	150	140	142	145	154	165	161	160	164	168
Kochi	72	73	80	87	89	86	86	85	85	86	88	88	88

Source: National Housing Bank

From the Table 1 & 2, it is clear that the highest price appreciation is in Chennai and the lowest is in Kochi during 2007 – 2015. The price appreciation in Chennai is more than 300 percent and at the same time the price has declined below the base year price in Kochi and Hyderabad. Residential real estate price has increased more than 200 percent in Ahmedabad, Bhopal, Kolkata, Mumbai, Pune, Faridabad and Lucknow. Cities like Jaipur and Bangalore registered only a moderate growth during the period of analysis.

Revised NHB Residex

In order to make the NHB Residex more current and updated with the prevailing macro-economic scenario, NHB revamped the processes and methodology used for the computation of Residex in 2017. The number of cities has been expanded to 50 that spread over 18 States and Union Territories. These include 38 smart cities, of which 18 are state capitals. The base year for the re-introduced Residex was moved from 2007 to 2012-13(Press Information Bureau, 2017). Presently NHB plans to cover 100 cities and also include Land Price Indices (LPI), Building Materials Price Indices (BMPI) and Housing Rental Index (HRI). The renewed NHB Residex can be further segregated in four indices: HPI@Assessment Price, HPI@Registered Price, HPI@Market Price for under-construction properties, and HPI@Market Price for resale properties (Sharma, 2017). All of these indices get data from different sources to provide an outline of the prevailing price in cities and their suburban regions. Presently, two out of four indices namely, HPI@Assessment Price and HPI@Market Price for under-construction properties are operational and the other two are expected to be operational soon.

Presently the indices are being computed using the weighted average price method (Laspeyres method) which is slightly distinct from the Modified Laspeyres method being used earlier. The weightages are now based on the volume of transactions in the base year at various product category levels. Earlier, in addition to transactional weightages, factors using housing/population stock weights were applied at zonal and product levels(National Housing Bank, 2018).

NHB Residex helps the general consumers and property buyers and sellers in their decision-making. It enables comparisons over time and across cities and localities before entering into a property deal. It also helps the lenders in credit evaluation. It provides promoters and developers with a standardized tool to assess the demand for residential property. Government agencies can rely on Residex to monitor the price trends at micro and macro levels and predict future behaviour of the housing market.

VI. Analysis of NHB Residex in Kochi

Kochi is an emerging Tier 2 metropolis where modern urban lifestyles are merging with the city's traditional framework. During its initial realty boom, Kochi grew exponentially with more people migrating to the city and spreading to the suburban areas of Edappally, Kakkanad, Vyttila, Kadavanthara and Palarivattam (Marwaha, 2014). Kochi is an investor's hotspot with many investments coming through the NRI remittances. The following tables (no.3&4) provide a comprehensive outlook on the real estate price trend in Kochi and its suburban areas.

Table: 3 NHB Residex for Kochi – Q4 2012 to Q1 2015

Zones	Localities	2007	Q4 2012	Q1 2013	Q2 2013	Q3 2013	Q4 2013	Q1 2014	Q2 2014	Q3 2014	Q4 2014	Q1 2015
Central Zone	Fort Kochi, Veli, Karugapalli, Vennala, Mammankalam	100	88	73	86	82	78	85	87	91	91	93
Edapally Zones	Elamakkara North, Podukalavattom, Vaitilla, Amaravati	100	92	85	74	80	66	79	77	78	81	82
Fort Kochi	Fort Kochi, Iravelli, Kochangadi, Edakochi North	100	64	64	64	59	59	59	59	61	61	61
Mattancherry	Mattancherry, Chakkamadam, Cherralai, Panayapalli, Edakochi South	100	107	108	106	108	94	88	87	90	90	93
Others	Panampally Nagar, Thevara, Maradu	100	92	118	113	103	115	124	129	129	122	121
Pachalam	Palarivattom, Karanakodam, Chalikavattom	100	73	105	100	100	100	89	91	87	90	90
Palluruthy	Konam, PaluruthiKacheripadi, Mundavelli, Chullikal	100	103	115	114	103	138	116	123	126	121	121
Vytilla	Edapalli, Devankulamkara	100	91	87	81	91	81	82	84	85	85	84
City Index		**100**	**87**	**89**	**86**	**86**	**85**	**85**	**86**	**88**	**88**	**88**

Source: National Housing Bank

The Residex index for Kochi clearly shows the correction happened in the residential real estate price during 2007-15. During this time period, only two zones have registered a higher index value than the base year price of 2007. The zone consists of Panampillinagar, Thevara and Maradu registered an index point of 121 (21% growth). Similarly, Palluruthi zone also registered a 21% growth in the index value. The lowest growth was registered at Fort Kochi zone with an index point of 61. The overall city index never reached the base year's price of 100 during this time period. During Q1 2015, the city Residex ended up with an index value of 88 which is at a 12 percent discount to the base year value.

HPI@Assessment Prices in Kochi

National Housing Bank has widened the scope of NHB Residex to 50 cities across the country from 26 cities earlier. The HPI@Assessment Price index takes into account the valuation data from banks and housing finance companies (HFCs). The index is using 2012-13 as base year (Babar, 2017). The Laspeyres Method has been used for the calculation of HPI @ Assessment Price. Weights are applied based on products (i.e., units classified by carpet area). Table 4 gives an updated real estate price trend in Kochi.

Table:4 NHB Residex of Kochi: HPI@Assessment Prices (Q4 2013 to Q1 2018)

Quarter	Record Count	Composite Index	Carpet Area Prices (calculated in Rupees per Square Feet)			
			Composite Price	<=60 sq.mt.(646 sq.ft)	>60 sq.mt.(646 sq.ft) and <=110 sq.mt.(1184 sq.ft)	>110 sq.mt.(1184 sq.ft)
Dec-13	35	104	4,334	4,529	3,920	4,735
Mar-14	51	108	4,514	4,525	3,996	5,089
Jun-14	44	109	4,555	4,469	4,082	5,108

Sep-14	52	111	4,656	4,287	4,317	5,149
Dec-14	67	112	4,678	4,203	4,400	5,136
Mar-15	73	112	4,694	4,334	4,416	5,117
Jun-15	63	113	4,740	4,447	4,413	5,196
Sep-15	97	115	4,796	4,472	4,422	5,315
Dec-15	80	117	4,882	4,617	4,446	5,451
Mar-16	114	121	5,064	4,678	4,831	5,445
Jun-16	106	125	5,216	4,814	5,096	5,475
Sep-16	71	130	5,447	4,909	5,363	5,709
Dec-16	99	134	5,595	5,110	5,511	5,840
Mar-17	38	136	5,703	5,374	5,517	6,014
Jun-17	124	141	5,912	5,138	5,581	6,525
Sep-17	105	137	5,742	5,076	5,440	6,287
Dec-17	108	139	5,829	4,990	5,545	6,410
Mar-18	170	136	5,702	5,025	5,377	6,277

Source: National Housing Bank

The updated Residex (HPI @ Assessment Prices) from Q4 2013 to Q1 2018 shows a revival of the residential real estate in Kochi. In Q4 2013, the index price was 104 and the positive side is that it never went below it till Q1 2018. There is also a significant improvement in the number of transaction records in residential segment in the city. The index value reached its maximum at 141 during Q2 2017 and settled at 136 during Q1 2018.

VII. Discussion
The study reveals that there is an overall uptrend in the real estate price in major cities of India with a few exceptions. The residential real estate demand in cities like Ahmedabad, Bhopal, Faridabad, Lucknow and Pune, has improved significantly and outsmarted the rate of growth of larger cities such as Delhi, Banglore and Hyderabad. The Residex figures shows that India's Tier II cities are catching up with Tier I cities in growth prospects. It is interesting to note that the real estate price in Tier II city Kochi has recouped at least 20 percent from the value recorded in Q4 2013 based on the revamped Residex index.It seems that the demonetisation in November 2016 had no impact on Kochi's realty price trends. However, the number of transactions have fallen drastically during Q1 2017.

VIII. Concluding Remarks
The revamped NHB Residex has given more accuracy and reliability than the previously available real estate price indices in the country.However, there is still a long way to go when compared with such indices in advanced countries. The implementation of Real Estate Regulatory Act (RERA) is a significant step which will ensure better transparency and accountability in real estate dealings so that the authorities can overcome the issue with data insufficiency. Recent macroeconomic outlook in the country favours investment in the sector, especially in cities like Kochi.

Bibliography
[1]. Babar, K. (2017, July 10). NHB's Residex to Cover 50 Indian Cities. Economic Times.
[2]. Business Dictionary. (2018, July 21). businessdictionary.com. Retrieved from Business Dictionary website: http://www.businessdictionary.com/definition/price-index.html
[3]. Geltner, D. (2014). Real Estate Price Indices & Price Dynamics: An Overview from an Investments Perspective. Annual Review of Financial Economics, 8.
[4]. Gothi, S. &. (2013). Review of House Price Index: Case of RESIDEX for Bhopal in India. International Journal of Engineering, Research and Technology (IJERT).
[5]. India Brand Equity Foundation. (2018, June 14). India Brand Equity Foundation. Retrieved from ibef.org: https://www.ibef.org/industry/real-estate-india.aspx
[6]. Marwaha, J. (2014, October 08). smartinvestor.in. Retrieved from Business Standard: http://smartinvestor.business-standard.com/market/story-270052-storydet-South_India39s_real_estate_hotspots.htm#.W3_aWugzbIU
[7]. National Housing Bank. (2018, June 14). NHB RESIDEX. Retrieved from NHB online: https://residex.nhbonline.org.in
[8]. Press Information Bureau. (2017, July 10). Press Information Bureau, Ministry of Housing and Urban Poverty Alleviation. Retrieved from pib.nic.in: http://pib.nic.in/newsite/PrintRelease.aspx?relid=167297
[9]. Sharma, A. (2017, July 20). Does a renovated NHB Residex help homebuyers? Retrieved from Livemint website : https://www.livemint.com/Money/uGjxpnLRbpywaXUh9WC9dO/Does-a-renovated-NHB-Residex-help-homebuyers.html