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Analysis of Behaviour of Real Estate Rates in India- A Case Study of Pune City

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***Abstract*—**Decisions for investment, buying and selling of properties depend upon the market value of that property. Issues arise in arriving at the actual value of the property as well as computing the rate of returns from the estate. Addressing valuation related issues through an understanding of behavior of real property rates provide the means to explore the quality of past decisions and to make valid future decisions. Pune, an important city in India, has witnessed a high rate of growth in past few years. Increased demand for housing and investment in properties has led to increase in the rates of real estate. An attempt has been made to study the change and behavior of rates of real estate and factors influencing the same in Pune city.

***Keywords*—**Real estate, valuation, property rates, trend analysis.

I. Introduction

HOUSING, being one of the basic needs of human, accounts to high percentages of national transactions per year [1]. The real estate sector has grown to such a monetary size that even minute variations have significant effect on the country's economic development [2]. These variations are dependent on the value of property and various extrinsic and intrinsic factors affecting the same. Land and property are main components of real estate whose value varies due to demand and supply conditions [3]. Hence, for a developing land market, a common issue that normally emerges is the measurement of asset values for investment purposes [4]. Real estate markets differentiate themselves fundamentally from other other markets as the values of properties are heterogeneous and vary from similar transactions. This heterogeneity exhibited by the real property values needs to be given due weightage to derive a pattern of variation in the values of properties over a period of time [5]. Careful attention should be given to the dynamics of various factors affecting the value of real estate for full understanding of the determinants of the market value [1]. This paper focuses on review of literature related to valuation of properties and assessment of real estate prices. It mainly identifies various factors affecting the rates for properties in Pune city as a case study and their effect on the rates of properties in various localities of Pune region over a period of time.

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A. Need of the Study

In property markets, supply represents the quantity of properties that are available for sale or lease and demand constitutes the number of possible buyers or renters seeking specific types of properties at various prices in a market within a given period of time [6]. Market value is the most probable price the property would fetch if sold in a competitive market [7]. It is affected by factors such as buyer and seller each typically motivated and acting knowledgeably acting in their best interest, price not affected by undue stimulus, adequate marketing efforts made and a reasonable time allowed for exposure in the open market, price represents the normal consideration for the property sold, unaffected by special or creative financing or sales concessions granted by anyone associated with the sale.

Asset markets have been playing an increasingly important role in many economies. Policy-makers, thus have become increasingly aware of the fact that sizeable changes and significant periodic corrections in asset prices may lead to financial and, ultimately, macroeconomic instability [8]. No market is continually in equilibrium hence the prices and values differ from time to time. Real estate market is the one that is characterized by cycles of booms and busts. These booms or bubbles are sharp price increases not justified by fundamentals [9]. Real estate goes through bubbles followed by slumps as observed from rates in Meru municipality, Kenya [10]. Sinai T. [11] documented several empirical patterns in real house prices in the U.S. over the last three decades to understand the pattern of boom and bust cycle. The burst of the real estate bubble in the United States triggered the deepest recession. Real estate market remains consistently under- or overpriced for long periods. The length of time involved may be related to the period it takes for buyers and sellers to move in and out of the market. In the stock market this period is generally short whereas in the property market it is relatively long. General trends may, therefore, emerge and if they can be forecasted, they may prove to be helpful in developing future investment strategies [12]. This needs to be studied in depth considering the contributing factors affecting the value of properties.

B. Indian Real Estate Scenario

The real estate sector in India has assumed growing importance with the liberalization of the economy. In Indian real estate cycle, the boom period lasted for a period of six years from 1990 to 1996 followed by the bust from 1996 until 1999. The prices began to level off from 1999 onwards. The residential property prices in some markets have recorded a

growth of approximately 15 to 20 per cent in the last four years [13]. The last decade witnessed a frenzied boom in the residential property prices. Rising income level due to information technology (IT), IT enabled Services (ITeS), lowering of interest rates, increased Foreign Direct Investment (FDI) inflow in real estate sector after 2005, has caused real estate prices to increase backed by strong demand. The consequent increase in business opportunities and migration of people has increased the demand for commercial and housing properties. This demand in turn is primarily being driven by emerging favorable environment for real estate investment, developments in the retail, hospitality and entertainment industries, economic services, IT and ITeS etc. Real estate index called Residex given by National Housing Board (NHB) of India, shows that among all the cities in India, Chennai has the highest growth rate in real sector whereas Pune ranks third in the list. Hence, a detailed study of variation in property rates in Pune is undertaken for this study.

II. Case Study - Pune City Demographics

Pune city, the second largest metropolitan city in Maharashtra and sixth largest in India is fast changing its character from pensioner's city to educational, administrative center and to industrial hub with reference to the IT sector. Population of the city has increased from 4.8 lakhs in 1951 to over 39 lakhs in 2010 [14]. A socio economic study of the city conducted in 2008 reflects that 40 percent of the total population falls in the age group of 21-40 years, 32 percent in the age group of below 20 years, 20 percent in 40 plus age group and senior citizens constitute around 8 percent of the total population. City has large number of talented young population with literacy rate of about 81%. Pune gives easy connectivity by various means to major cities in India. The city offers ample job opportunities in various sectors like education, industry, software, production and the service sector.

A. Key Drivers for Real Estate Growth in Pune

Pune's proximity to Mumbai and the competitive & attractive prices as compared to prices in Mumbai city has attracted lot of investors [15]. This has added fuel to the spiraling prices of properties in Pune. The growth in residential real estate market has been largely driven by rising disposable incomes, a rapidly growing middle class, fiscal incentive on both interest and principal payments for housing loans, demanding expectations of aware customers as well as increasing city limits and increasing number of nuclear families. Growth of any area leads to improvement in infrastructure which in turn fetches higher demand for real estate in that area. As the demand for the property increases the rates of properties in that particular area also increase. All these factors directly or indirectly affect the rates of real properties. Overview of real estate sector in Pune shows that industries like IT, automobile, retail, food processing, hospitality, education can be considered as the key drivers for real estate growth. Reasons these industries affect the real estate are as given below:

- Information Technology:

Pune is fast emerging as an infotech hub. The availability of land in prime locations, coupled with a favorable climate have encouraged the continuous growth of IT park projects. There are about 110 companies registered with the Software Technology Park of India (STPI) and Pune houses all the major ones. The IT industry employs a high number of qualified people increasing the overall demand for housing.

- Automobile:

The automotive sector, comprising of the automobile and auto component sub sectors, is one of the key segments of the economy. Pune is defined as the 'Detroit of India' due to presence of automobile industry units housing the labors and professionals.

- Retail:

With the influx of professionals entering the city to meet the demands of the ever growing IT industry, the city has been witnessing a fast changing consumer spending pattern. As a result, retail companies are finding it a potential market for high end lifestyle products resulting into better and quality shopping complexes.

- Food Processing Industry:

Food and food processing industries are one of the fastest growing clusters contributing to the prosperity of the city. It has been identified as one of the major fruit and vegetable cluster and is planning a mega food park.

- Tourism:

Pune being cultural capital of India invites large number of tourists per year. The city is considered visitor friendly and safe. Growth in tourism sector has increased the occupancy rate around 50% increasing the demand for hospitality industry. The clearance for the proposed project for an international airport the vicinity of Pune will directly connect it with the rest of the world increasing the inflow and outflow.

- Hospitality:

According to a survey by Federation of Hotel & Restaurant Association of India, a large number of new national and international hotels are coming up in Pune city. This being a service oriented industry; staff requirement is very high creating demand for properties.

- Education:

Pune has been established as an academic hub and popularly known as 'Oxford of the east'. Education sector of Pune has witnessed a massive influx of students coming in from all over the country and the world. Out of the total annual influx into the city, 30% is the percentage of students.

Above identified drivers are responsible for growth of various areas of Pune in varying proportions. Study of the variation in rates of the properties over a period of time in Pune is carried out as a part of this study.

III. Study of Property Rates in Pune City

For the convenience of the study, Pune is divided into 6 zones namely central (old), central (new), northern, southern, eastern and western (Table I). Quarterly rates of all these zones for the past 6 years are collected and average yearly rates computed from the same. It is identified that each zone has one or more prominent key drivers responsible for its growth. The zone and its respective key drivers are as shown in Table I below.

TABLE I
Identified Zones in Pune City

Zones	Prominent key drivers
Central- Old	Retail, Education
Central- New	Education, Hospitality
North	Automobile
South	Retail, IT, Hospitality
East	Education, IT, Hospitality
West	Food, retail

A. Trend Analysis

A comparative chart of yearly variation in rates (INR/ sqft) for the identified zones is shown in Table II. The rates of properties in these zones vary from 2005 to 2012 with overall appreciation ranging from 180 % to 490%. Table III gives the yearly percentage variation of rates for the zones Data analysis is expressed in graphical form with X axis representing year, Y1 axis representing rates of properties in INR (or rupees)/sqft and Y2 axis representing percentage variation of rates. A combined plot of the lines of rate variation and percentage variation of rates for individual zones are drawn. Analysis of these graphs (Figs. 1 to 6) helps identification of patterns of rate variation. The yearly percentage rate of change for the zones and rate variation is evident from the graphs given below.

TABLE II
Yearly Variation in Rates

Year \ Zone	Central- Old	Central- New	North	South	East	West
2005	1627.1	2215.6	-	1256.3	1553.1	1343.8
2006	1949.5	3256.3	1497.5	1831.3	2631.3	2128.6
2007	2631.3	5371.9	2407.5	3260.0	4193.8	3398.2
2008	3172.5	7421.9	2811.0	3868.5	4950.2	3810.5
2009	3066.7	7218.8	2627.5	3585.0	4231.3	3265.6
2010	4118.8	8678.1	3055.0	4141.3	5016.7	3690.6
2011	5152.1	10821.9	3562.5	5142.5	6535.4	4467.2
2012	6395.8	12993.8	4230.0	6215.0	7716.7	5487.5
Overall% increase	293.08%	486.43%	182.47%	394.7%	396.86%	308.36%

TABLE III
Yearly Percentage Change in Rates

Zone \ Year	2005 to 06	2006 to 07	2007 to 08	2008 to 09	2009 to 10	2010 to 11	2011 to 12
Central- Old	16.23	25.80	17.15	-3.66	25.43	19.44	19.15
Central- New	31.49	40.46	24.90	-4.55	15.10	19.09	15.29
North	-	37.91	14.47	-7.18	13.65	14.38	15.89
South	31.41	42.27	15.64	-8.72	12.82	19.56	16.27
East	40.75	35.40	15.41	-19.03	17.42	23.06	13.77
West	38.23	35.82	10.17	-13.87	12.08	17.37	17.88

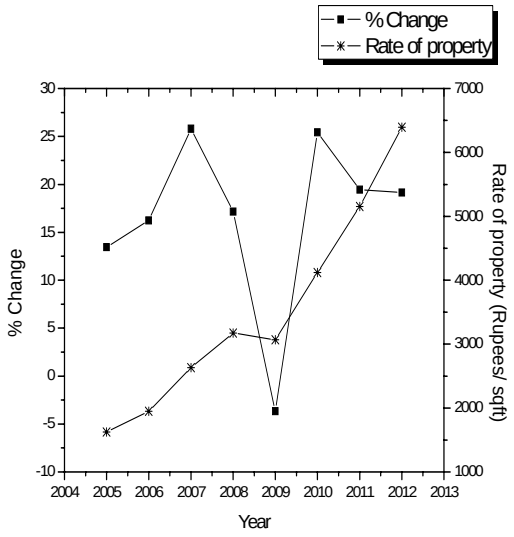

Fig. 1 Percentage variation in rate in Central old Zone

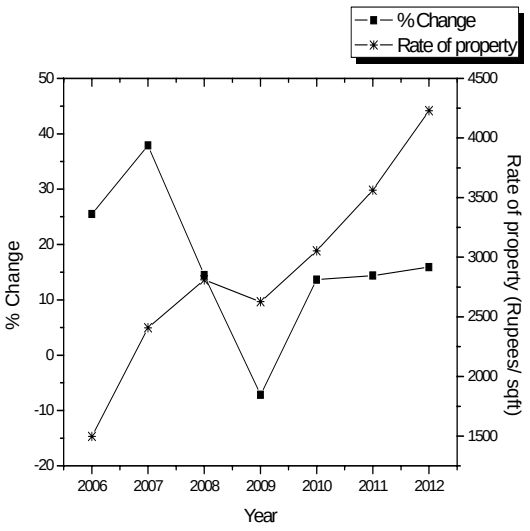

Fig. 3 Percentage variation in rate in North Zone

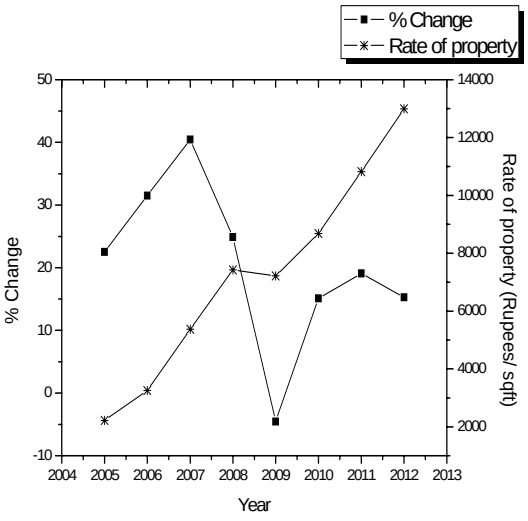

Fig. 2 Percentage variation in rate in Central new Zone

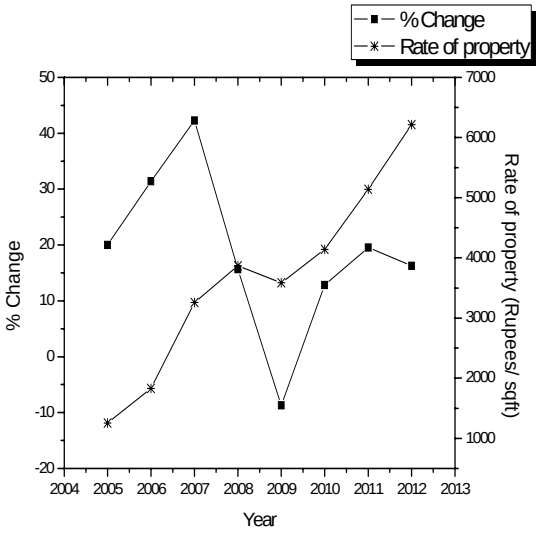

Fig. 4 Percentage variation in rate in South Zone

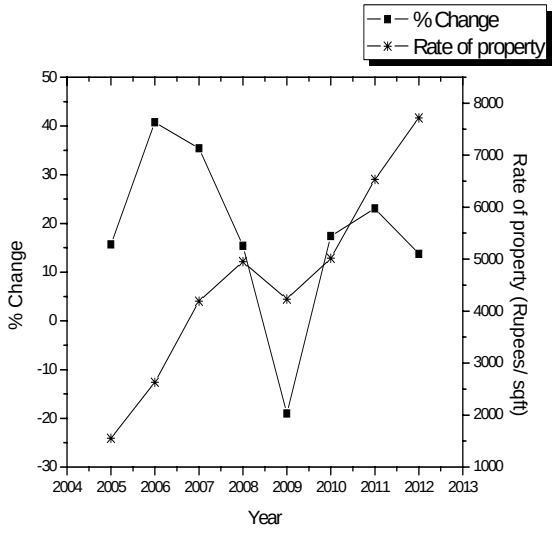

Fig. 5 Percentage variation in rate in East Zone

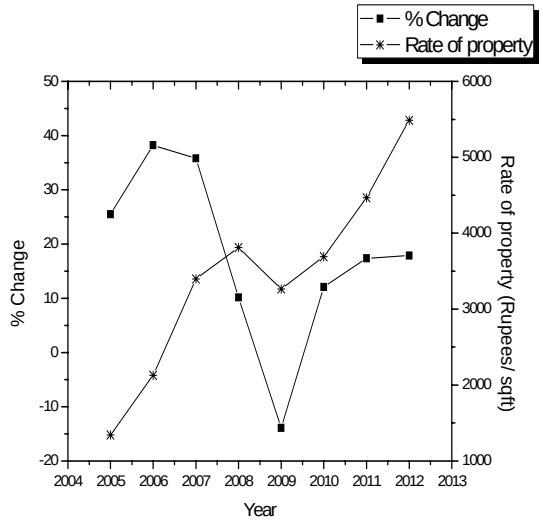

Fig. 6 Percentage variation in rate in West Zone

IV. Observations and Discussion

Superimposed lines representing rate of property versus year and percentage change of rates versus year are plotted on double Y axes graph (Figs. 1 to 6). It is observed that variation in rates has increasing profile till 2008 after which it decreases and again follows an increasing path. There is consistent decrease in rates from 2008 to 2009 for all zones thus representing recession period. During this period, the line representing percentage variation in rates shows uniform dip. The extent of this dip varies zone wise with central- old and central- new identified as least affected areas. Percentage rate of increase per year shows that there is positive change in rates for all years except 2008 to 2009 which has seen negative percentage change in rates.

East zone observed highest percentage rate increase in the year 2006. Central and North zone observed highest percentage increase in rates in the year 2007. Percentage changes in rates were at their peak in the year 2005-06 and there was gradual drop from 2006 till 2009 in the percentage rate of change in rates. There is continuous increase in rates except 2008-2009. The percentage variation seems to be more important parameter for assessing the variation which can be easily seen from Figs. 2, 4 and 5, which show for year 2011-2012, there is increase in the rates but the percentage change of rates has reduced having a downward profile. Also, recession in future can be identified to certain extent from the plot of percentage variation of rates. It shows decrease in the overall percentage increase of rates prior to the actual period of recession which cannot be identified from plot of rate variation alone. This can be seen from the decrease in overall percentage rate change in the Central Old, Central New, South and East zone. These zones show increase in rates but the corresponding percentage variation has decreasing profile indicating forthcoming recession. This signifies that retail, education, hospitality and IT sectors have been affected by the pre- effects of recession. As only North (Fig. 3) and West zone (Fig. 6) show increasing percentage variation, it can be commented that the automobile, food and retail have not yet experienced the approaching recession. Though there is increase in percentage variation for North zone, the quantum is less. For central old zone (Fig. 1) represented by retail and education, there is decrease in percentage variation since 2010, which can be related to decrease in demand due to saturation of the areas, lack of amenities, lack of parking places and locality.

Also, the overall percentage increase (Table I) shows that Central New zone has witnessed the maximum percentage increase i.e. 486.43% in rates since 2005 till 2012 followed by East and South zone with 396.86% and 394.71% respectively. North zone has seen least % increase of 182.47% till 2012. Highest percentage increase in Central New zone is due to the proximity to all facilities, centralized location, and developed infrastructure due to hospitality sector. North zone being known for its automobile industry, area allocated to housing is low as compared to other zones which is evident from the percentage increase since 2005. East and South zones have predominance of education, IT, hospitality and retail sectors which have witnessed high boom in rates since past few years thus increasing the overall demand for properties in these zones.

V. Conclusion

Area of Pune has been increasing due to addition of fringe developing areas. This has served to decrease pressure on the central city encouraging an outward growth pattern. Pune real estate market today is buoyant and inviting. Upcoming projects like International airport and Metro rail would be changing the dynamics of the city as it may give increased floor space index (FSI) in the nearby areas, thus increasing the demand. As explained in the graphs, Pune needs to continue this growth and exploit its potential to its fullest so as to make the percentage growth rate sustainable. The trends exhibited in the graph clearly shows that rates are continuously increasing

except for recession period but the percentage growth rate is not guaranteed. For better forecasting of rates, data spread over longer span of time should be available which will give number of cycles of boom and bust, thus facilitating accurate trend forecast. Percentage growth rate is a better measure of trend analysis than rate variation alone. Collection of more data and further study is required to forecast the trends of rate variation for guiding the stakeholders related to real estate market in making precise investment decisions.

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