

FUTURE VALUE PROJECTIONS OF REAL ESTATE IN SELECTED LOCATION

Nauman Chicktey¹, Sameeksha Dongare¹, Honey Gala¹, Sampada Joshi¹

(¹ B.E. students, Department of Civil Engineering, M. H. Saboo Siddik College of Engineering, Mumbai)

Abstract: *The Real Estate Valuation has gain momentum in recent years due to financial awareness, economic growth, innovations in investments, accuracy in taxation and infrastructural development of the City. This paper focusses on the subsequent variation of value of properties in selected location i.e. Goregaon, Western Suburb of Mumbai. Based on the values collected till date, also the future values are projected in the zones of the same location. The values from 2004 to 2019 were collected from "Stamp Duty Ready Reckoner & Market Value of Properties in Mumbai" published by Government of Maharashtra [1]. By collecting data for these years, a regression analysis was used to determine the mathematical function which gives the nearest market value of the property. The comparative study was performed on these mathematical functions by consulting the practicing valuer. These predicted values can be considered while planning for investments and returns in real estate.*

Keywords: Real Estate Valuation, Ready Reckoner, Regression Analysis, Mathematical Functions, Practicing Valuer.

INTRODUCTION

Valuation is the art of assessing the present fair value of a property at a stated time. Rises and falls of fair price can occur in very short space of time it follows, therefore all valuations must clearly state the date to which the valuation relates, since time is the essence of all valuations. The valuation of real estate is therefore required to provide a quantitative nature of benefit and liabilities accruing from ownership of the real estate. Valuation are required and often carried out by different players in the market place such as Real estate agents, appraisers, assessors, valuers, mortgage lenders, brokers, property developers, investors, fund managers, market researchers, analysts and other stake holders. The main purposes of valuation are tax fixation, sale, rent fixation, insurance premium, mortgage value, compulsory acquisition, wealth tax and estate duty, capital gains tax.

OBJECTIVE

The objective of the paper is to study and analyse the present fair market values of the properties for the selected zone (Goregaon, Western Suburb of Mumbai) and arrive at future projections of values for the same by performing regression analysis.

METHODOLOGY

The values from year 2004 to 2019 were collected from "Stamp Duty Ready Reckoner & Market Value of Properties in

Mumbai" published by Government of Maharashtra [1]. A regression analysis was performed considering these values as done by *Sayed and Sawant. (2015) and Sayed and Sawant. (2016) for predicting the market rates of green components using Wholesale Price Indices [2], [3].* The future predicted values were obtained from practicing valuers, the corresponding mathematical function was selected for the nearest possible predicted outcome down the years.

DESCRIPTION OF LOCATION

The properties can experience large variation in their values due to nothing other than their location. The most desirable properties with highest value are those in prime spots. One such location selected for the detailed study was Goregaon, Western Suburb of Mumbai. The various reasons for selecting this particular location are:

- ❖ Recent Development of Harbour Terminus.
- ❖ Ecologically balanced suburb due to existence of Aarey Colony.
- ❖ Well known residential complexes, Maharashtra Housing and Area Development Authority (MHADA) layouts.
- ❖ Different zones like IT parks, industrial area, residential area.
- ❖ Cultural development due to existence of playgrounds, sports clubs.
- ❖ Convenient East-West transportation facility like Veer Savarkar Flyover and Mrinaltai Gore Flyover.
- ❖ Vibrant economic movements due to redevelopment.

REGRESSION ANALYSIS

Regression analysis is a statistical technique used to determine co-relation between different data points. The results of the regression can then be used to predict future results. It is a tool used to determine how different independent variables influence a single dependent variable. These influencing variables are called explanatory or independent variables. The most basic regression, a least squared method, measures and plots the correlation between a single dependent [Y] variable and a single independent [X] variable. *As stated by Monson, M. (2009), regression analysis and hedonic modelling are used as valuable tools for real estate professionals in determining the correlation between building characteristics and the transaction price, as well as to predict future transaction pricing [4].*

In this paper, the year is the independent variable and value of the property is the dependent variable. The real property

may be large or small and has a number of items contributing to the overall price; and, regression analysis provides a method to measure how much each of those items affect the transaction price. Theoretically, there are indefinite number of external and internal characteristics that add value. Hence, we require multiple regression analysis, which is a technique used to determine the contributing effect of several independent variables on the dependent variables. Since in this case the market rates are directly obtained from “Stamp Duty Ready Reckoner & Market Value of Properties in Mumbai” published by Government of Maharashtra [1], in which all the characteristics are already considered, therefore the single regression analysis proves to be sufficient.

Table 1 comprises of Ready Reckoner Rates per Sq.mt. of Village 57, Zone 268 For Years 2004-2019. Also, it includes Linear, Exponential, Logarithmic and Polynomial Projections for the same years.

Table 2 uses the projections of Table 1 to produce predictions of Rates per Sq.mt. for years 2020-2030.

Table - 1 : Ready Reckoner Rates per Sq.mt. of Village 57, Zone 268 For Years 2004-2019

Village No./ Zone No.	57/268	57/268	57/268	57/268	57/268
Year	Linear	Exponential	Logarithmic	Polynomial	
2004	20000.00	6937.50	18130.48	6884.83	35056.69
2005	22000.00	13915.00	20653.70	13885.59	38457.45
2006	23100.00	20892.50	23528.08	20882.86	42371.91
2007	25400.00	27870.00	26802.48	27876.65	46800.07
2008	32100.00	34847.50	30532.58	34866.94	51741.93
2009	32100.00	41825.00	34781.81	41853.76	57197.49
2010	35300.00	48802.50	39622.39	48837.10	63166.75
2011	47700.00	55780.00	45136.65	55816.97	69649.71
2012	54900.00	62757.50	51418.32	62793.37	76646.37
2013	68600.00	69735.00	58574.21	69766.30	84156.73
2014	82400.00	76712.50	66725.99	76735.76	92180.79
2015	90600.00	83690.00	76012.25	83701.77	100718.55
2016	90600.00	90667.50	86590.88	90664.32	109770.01
2017	99700.00	97645.00	98641.74	97623.42	119335.17
2018	111900.00	104622.50	112369.72	104579.07	129414.03
2019	111900.00	111600.00	128008.22	111531.28	140006.59

Table - 2 : Predicted Rates per Sq.mt. of Village 57, Zone 268 For Years 2020-2030

Village No./ Zone No.	57/268	57/268	57/268	57/268
Year	Predictions	Predictions	Predictions	Predictions
2020	118577.50	145823.13	118480.04	151112.85
2021	125555.00	166117.35	125425.36	162732.81
2022	132532.50	189235.92	132367.25	174866.47
2023	139510.00	215571.89	139305.70	187513.83
2024	146487.50	245573.05	146240.73	200674.89
2025	153465.00	279749.48	153172.32	214349.65
2026	160442.50	318682.23	160100.50	228538.11
2027	167420.00	363033.27	167025.26	243240.27
2028	174397.50	413556.64	173946.60	258456.13
2029	181375.00	471111.35	180864.53	274185.69
2030	188352.50	536675.95	187779.06	290428.95

The data so collected was studied in detail and the same was analyzed and compiled to arrive at the most appropriate conclusion by way of mathematical equations of regression analysis to guess or predict the future rates of the zone wherein the property is located. After performing the regression analysis on the said data its graphical representation was done in the following manner namely,

Chart-1: Linear Rate per Sq.mt. Projections From 2004-2030.

Chart-2: Exponential Rate per Sq.mt. Projections From 2004-2030.

Chart-3: Logarithmic Rate per Sq.mt. Projections From 2004-2030.

Chart-4: Polynomial Rate per Sq.mt. Projections From 2004-2030.

Chart-1: Linear Rate per Sq.mt. Projections From 2004-2030.

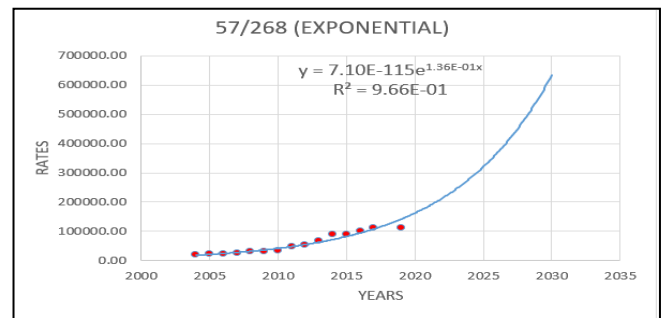
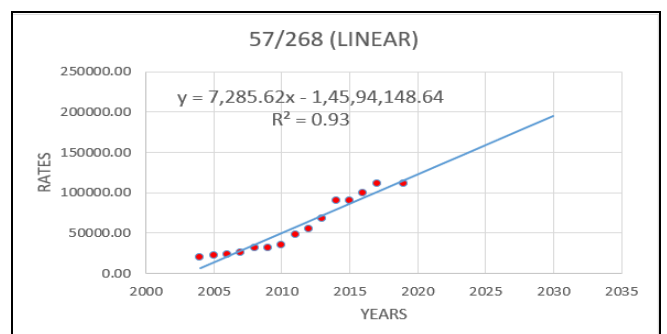


Chart-2: Exponential Rate per Sq.mt. Projections From 2004-2030.



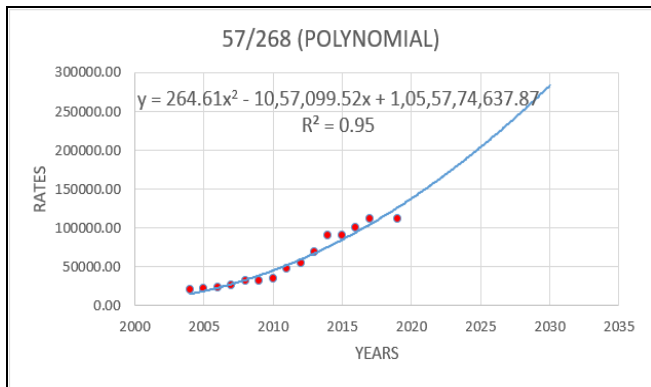


Chart-3: Logarithmic Rate per Sq.mt. Projections From 2004-2030.

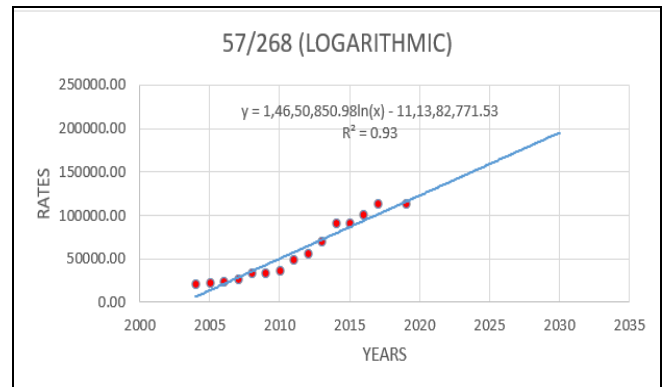


Chart-4: Polynomial Rate per Sq.mt. Projections From 2004-2030.

CONCLUSION

After the Graphical representation, as a matter of further analysis or study, we have executed the thorough exercise on all the four options to arrive at the best probable equation compatible with the real estate history scenario.

In this situation, we had consulted the known senior valuer in practice, *Sanjay Eknath Joshi (B.E. Civil, Chartered Engineer, Registered Valuer and Consultant)* and sought his vital opinion and requested to highlight and guide us to reach the desired goal. During the discussions, the respected senior valuer by appreciating our efforts, advised to focus on the two options namely, *Exponential Rate Projections* and *Polynomial Rate Projections*, which in their opinion are closer to the real variations which took place during the period of analysis. Hence, the further analysis was done on the basis of the equations derived in *Exponential Rate Projections* and *Polynomial Rate Projections*.

The equations so derived in the graphical analysis of exponential and polynomial option are reproduced as under:

Exponential: $y = 7.10E - 115e^{1.36 E-01x}$

$R^2 = 0.966$

Polynomial: $y = 264.61x^2 - 10,57,099.52x + 1,05,57,74,637.87$

$R^2 = 0.95$

DISCUSSION

Projections obtained from above graphs for exponential and polynomial regressions produce a regression coefficient of 0.966 and 0.95 respectively. Despite of both the coefficients being so close rates over the years show major variations, for year 2030 predicted rate for exponential is Rs.5,36,675.95 and for polynomial is Rs.2,90,428.95, this difference of over Rs. 2,00,000 can create ambiguity.

Real Estate Market depends on Circumstantial Factors, which greatly affects property rates. Hence, both the approaches are valid in their respective scenarios. If the growth and development rate of certain region is high and the area is prospering in terms of infrastructure and amenities, then the property values tend to increase exponentially and Exponential regression is to be adopted for future predictions. However, if the growth and development rate is coming to a point of stagnation, where infrastructure is already developed and there is no scope for further development, in such scenarios, Polynomial regression will give more realistic values.

Valuation, being an art more than science, it is advisable for the valuer to choose appropriate method considering the Circumstantial Factors of the region.

LIMITING CONDITIONS

At the flag end of the project, during the discussions with the senior practicing valuers, some of the very important points were highlighted, which in our opinion are just and necessary to be highlighted while concluding the project work and its analysis. In the said discussions, we were

enlightened by the senior valuers and the gist of the said advice are listed pointwise as:

❖ According to standard valuation practice, valuation is more an art than the science. The opinion of two independent valuer may differ to a better extent but not beyond 15% on either side. The said opinion was on the basis of leading judgements of the Hon'ble Supreme Court of India; namely

1) K. P. Varghese V/s ITO (1981) [5]

2) Gold Coast Trust V/s Humphary (1949) [6]

❖ The valuer should not have any personal interest in the property valued. This clearly indicates the precise code of conduct by way of professional ethics.

❖ The rates mentioned in the Ready Reckoner for the relevant period are applicable to all the properties within the given zone. The actual rates within the zone differ based on its location, features, like utility of the building as well as property, amenities and other characteristics. For example, the Ready Reckoner does not take care of floor rise rate increase especially in high rise building. Apart from the floor rise the rates on the same floor within the same property may differ due to its frontage advantage. The rates may have adverse effect due to stigma to the property.

❖ The Ready Reckoner rates are majorly considered for the calculation of Revenue collection by way of Stamp Duty. The valuer is never bound to certify the rates only on the basis of the Ready Reckoner rates but he has to be prompt and prudent to justify and substantiate the valuation so arrived. The said conclusion was upheld by the order of Hon'ble Supreme Court of India in the matter-

Jawaji Nagnathan V/s REV. DIV. Officer (1994) [7]

❖ The well-known, accepted and established fact in the Real Estate market is of Unaccounted Money or in other terms it is the Cash Component which never comes on record and in Real Estate market it plays a vital role like Parallel Economy. The accountability of Unaccounted Money may drastically differ with the Ready Reckoner rates but as a competent Valuer, the expert should never ignore this factor but should be bold and confident enough to substantiate his Value.

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