



## Mathematical Modeling for Real Estate Valuation

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### ABSTRACT

Numerical model the words mirrors an impervious language and depends on repetitive insights. The Mathematical model portrays the monetary background that will at last influence corporate income, loan costs, and swelling. They can likewise impacts the future expense of financing a house, the security of the occupation, and the general way of life.

Moreover for firms contending in worldwide commercial center, valuation file are of specific significance since they permit official to evaluate business opportunities.

The model helps the promoter/designer to settle on the dominating interest for specific business property in his general vicinity i.e., it distinguishes the business calling which will bring better returns in that specific property.

At deciding costs in land, the greater part of the general population rely on upon the venture consultants or hear TV investigators Talk unendingly about the financial markets. Unmistakably there is a lot of appropriately data and not every last bit of it is valuable. The proposal is sorted out in a way that we trust gives a reasonable photo of the entire subject, regulated.

**KEYWORDS :** Mathematical Model, valuation

### Introduction

Real estate valuation model is the main marker that can shockingly come nearer to anticipate the future bearing of theeconomy. Land is among the principal segments to close downwhen the economy nears subsidence, and it is the most punctual to blossom when the economy begins to turn up.

What keeps land so a long ways in front of whatever remains of the economy? For the most part its affectability to financing costs. An overheated economy drives financing costs higher. As home loan rates climb, this discourages interest for homes and disheartens future development. Manufacturers are likewise less inclined to look for development advances when rates are high. On the other hand, when home loan rates tumble and home costs decrease occasions that normally happen amid times of financial shortcoming – enthusiasm for home purchasing is revived, now that it is more moderate. Manufacturers, thus, surge back to banks before the expense of obtaining rises once more. How does the valuation model fit into this? Why ought to financial specialists, designers, business visionaries or an end client give careful consideration to these? Since they are indispensable indicators that let us know what the economy is up to and, all the more imperatively, in what course is it prone to go later on. These pointers depict the financial background that will at last influence corporate profit, loan fees, and swelling. They can likewise impact the future expense of financing an auto or a house, the security of our employments, and our general way of life. What's more, for firms contending in the worldwide commercial center, valuation list are of specific significance since they permit administrators to survey business opportunities abroad. It has been an endeavor to show signs of improvement comprehension of what to look like at land valuation model, why they can be so persuasive, what they may let us know about the future, and how a typical man can best use all these data

### ii. structure of model

1. Our scope was limited to only commercial property.
2. The questionnaires, as shown in 6.1 were circulated to selected developers, valuers and buyers. The main concentration was on the feedback of the buyers since they being the end users. The feedback from developers and valuers served as a model to develop this model.
3. The questionnaires were given to the customers from all streams of commercial profession. We received the feedback related to architects, retail owners, call centers, departmental

stores, advocates, doctors, chartered accountants, etc.

4. They were asked to give weightage to the attributes affecting their property or their businesses. That formed the ideal condition or say minimum requirement for any commercial property of that particular profession.
5. After receiving all the feedbacks, a matrix was prepared as shown in the adjoining sheet.
6. The matrix displayed industry Vs attributes. The weightages given by individual buyers was written against their profession with respect to the attributes in the horizontal line.
7. The sum of this line was taken thus deriving as  $\Sigma F_0$ . These different  $F_0$  values indicate the minimum required weightage for each attributes.
8. These each values of  $F_0$  are compared to the site or the property whose value has to be found.
9. The state of the attribute can be ranged among 0%, 25%, 50%, 75%, 100%, 125%, 150%, 175% and 200%. If the attribute affecting the property is better than  $F_0$ , then it is given the weightage of more than 100% (between 125% - 200%); and if it is less than the minimum requirement, the weightage shall be below 100% (between 0% - 75%); and if the state is same as that of the  $F_0$ , then it is given 100% weightage.
10. From the above computation  $F_1$  is derived. This  $\Sigma F_1$  indicates the present state of the property as compared to the minimum one.
11. Let  $V$  be the value to be found and let  $P_0$  be the base price.

$$V = P_0 (\Sigma F_1 / \Sigma F_0)$$

**Fig.1 Structure of Model**

### III. conclusion

Mathematical model works as an Economic Indicator, indicating the rise and fall in the Real Estate prices.

The model is developed considering individual professions in the commercial area. The intensity of the judgment is lesser than those in ready reckoners or in conventional method of valuation.

The model helps the developer to identify the commercial profession which will fetch better returns.

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