Good example of essay on marginal effect of a variable on property price

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Abstract:

A regression analysis is performed to understand the whole lot of data available to it in a better way. Regression analysis is employed in statistics to provide an in-depth knowledge of the data collected and also to make important decisions based on the results obtained in the analysis.

This regression analysis focuses on the relationship between the functions and variables selected while selling a property depending upon the market situations. In addition to identifying the variables employed while selling a property, it also discusses the total number of variables that can be taken into consideration when selling a property. The market situation at a particular time and its effect on selling of property of different sizes and amenities is also considered while selecting the variable. Studying a list of properties of similar or dissimilar types was helpful in finding out how market situation can affect the selling price or the time required for selling of a property.

The age of a building and its size will make the selling price vary. This is an assumption that can be well made on an experience basis. But, if it can be proved by analyzing the data using regression analysis, then this could be correlated for future references. That is the purpose of carrying out this regression analysis of the data collected for selling up of properties of different sizes, shapes and age.

Introduction:

Regression analysis is carried out to estimate the relationship among the variables. A regression data can be collected for various situations related to

a property. In this case, the data that was analyzed was that of properties that were being sold. A data of any variety always contains a huge among of entities. Narrowing it down to two or three, fixing a function and a variable and then working out their relationship is what regression analysis is all about.

Here, the data that is available with us is that of selling of properties built on any particular date. There are a lot of properties that affect the selling of properties and could have been taken as variables. For example – the area in which a house or property is placed, current price, the selling price, etc., were studied carefully to pick out the variables.

The properties selected for doing this regression analysis is from different parts of the city and this is not the important data that is taken into consideration for the analysis. The two main functions, " sales price or the contract sales price" of the properties and the " DOM or the days on market" work well into finding a solution for this regression analysis. Since these two functions needed variables to find out the relationship and analyze them, the variables were found from the huge data available. The data was collected for this analysis is a historical data obtained after much study through the selling and purchasing of various properties around the city.

The data collected has various findings on the selling of properties, the date it was sold and also other information's like the area of the house or the date in which was created. These data were studied carefully before picking up on the two variables that was worked out for this regression analysis.

The most consistently changeable entities that were considered as variables here were the age of a building that was being sold and the size of each

building. The variables were taken in the analysis to check the relationship between the SP and the DOM. It was assumed when starting up the whole process that the selling price of the property would be dependent on these two variables that were taken up for analysis and the results and findings after the calculations proved it to be correct. Though one can easily assume the fact that the selling price would definitely change with the age of a property, these data collected and the analysis performed, proved this fact to be correct.

Also, though regression analysis employs a lot of method for prediction like linear regression and least square regression, only one method, the former one was selected in this case.

The end of the analysis proved how both these variables were dependable on each other.

Data and Modeling:

There was a huge amount of data in the sheet that was used to analyze the regression in variables. The two functions, SP and DOM were analyzed using two variables selected in this analysis – the size of the property and its age. Least square regression or the multiple regressions was selected in the case of analyzing these data instead of the other form of analysis – the linear regression. This is because; we have one dependent variable and two independent variables here. The linear regression method was selected for the analysis of this particular regression analysis, because:

- The linear regression does not allow optimal measures. Only the least square regression or the multiple regressions can be used for this case.

- A good and exact result can be obtained when using least square regression rather than the linear regression.

Multiple regressions are used here, because of the direct proportionality of two variables that are considered for analysis.

The age of a property and its selling price are directly proportional to each other. Again, the size of the building is proportional to the selling price or the SP and the age is also directly proportional to the SP.

Linear aggression uses the following equation:

$Y = a + bX + u$

We have employed a multiple regression analysis technique, and this begin with the usage of equation/formula-

$\gamma i = \beta 0 + \beta i \, Xi1 + \varepsilon i$

In this equation, γ is the dependent variable, β0 is the intercept, βi is the slope and Xi1 is the independent variable.

The last term, the ε is the residual, which indicates the composite of all the other individual differences those are not identified in the model. Following are some of the calculations based on which the conclusion is drawn for this regression analysis. The tables below show the whole calculated data and how the analysis was carried out.

Based on the following data, a graph was drawn for the linear regression as follows:

Conclusion:

This paper has investigated the correlation between variables that have an effect on the property price. Keeping in mind the two functions that were chosen for the purpose of conducting the analysis – SP and DOM, it can be seen from the two stages least squares analysis conducted that the results are consistent with the findings. A study of the literature related to property and its prices have revealed that while selling price is dependent on the characteristics of the property and its quality, the number of days that the property stays on the market is determined by its selling price. The same hypothesis has been tested in this paper and the analysis has revealed and made the following conclusions possible.

In the first stage of the analysis, the dependent variable SP is tested against the variable Area which has been taken to represent the characteristics of the property. This represents the first equation used to derive the results. While SP is the dependent variable here, the area of the property is the independent variable. Conducting the regression on this set of data with 931 observations, the results reveal R square of 55. 6% which is a reasonable fit for the data. This means that more than half of the variations in the Price range can be explained with the independent variable of Area of property. (Weisberg, S., 1985) The F value is usually considered to be a sign of a strong instrument if it is higher than 10. In this case the value of F is 1164 which means that the instrument in the analysis is strong.

The graph of dispersion of data which is revealed after the first stage of

analysis also indicates that the values are valid since they are very closely spread. This analysis also indicates that an increase in the area of the property results in an increase in the price of the property and vice versa. This means that area and other characteristics of the property have a positive correlation and when one increases the other also sees an increase especially in the price. (Sen, A. and M. Srivastava, 1990)

In the second stage of the regression, the analysis has been done on the second equation where SP is a vector variable and the dependent variable is the DOM which represents the number of days for which the property has been on the market. The scatter chart created for the second stage of the analysis indicates that the values are consistent with the data and goes to show that for if the price of a property undergoes an increase then the number of days that the property stays on the market also increases.

Works cited:

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