

Multivariate techniques

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Introduction

This white paper explains the importance and use of the multivariate analysis with a real example of the firm using one of its techniques. Before giving a clear example, three major tools or techniques of multivariate is provided for a clear explanation. A variate is the average weight of the variables. And the analysis purpose is the combination of weights. In any technique of multivariate, all the results depend on the quality of the data. Normal distribution of the data actually shows the quality of the data. The three major types of multivariate techniques are provided as

Multiple Regression Analysis

This technique actually examines the relationship between a single dependent variable and more than one independent variable. It is the most common type of the method used. It shows a linear relationship holding the lowest sum of the squared variances. The assumptions such as normality, equal variance and linearity and finely and clearly examined by the researcher. A coefficient known as beta are taken which is the marginal impacts of each variable. This technique is usually used by the firm for its forecasting.

Logistic Regression Analysis

This technique is actually the variation of multiple regressions and allows the firms to predict different events. The technique used non-metric dependent variables and the actual objective of the technique is to achieve probabilistic assessment of binary choice. The independent variable used by the researchers is either continuous or discrete. Later, a contingency table is

formed holding the classification of observations and the observations and predicated results are matched. Then the researcher sum the events that are predicted to occur and they actually occur and sum the events that the researcher predicted not to occur and they actually do not occur. These two sums are added and divided by the total number of events. This shows the effectiveness of the model and helps to predict the choices.

Cluster Analysis

The cluster analysis actually divides the large data into many subgroups and this grouping is done on the basis of the similarity of the characters. The major problem with this technique is outliers and often shows irrelevant variables. The technique must be represented of population and it has uncorrelated factors. There are three major cluster analysis used by the firms

1. Hierarchical (it is appropriate for smaller data and hold treelike process)
2. Non-hierarchical (it requires the specification of the number of groups)
3. Priori or the combination of above two

There are four main rules for developing the clusters

1. The clusters must be different
2. These clusters must be reachable
3. They should be measurable
4. These clusters must be profitable.

This technique is used for market segmentation.

Real example of the firm using multivariate

The agriculture department of USA organized a cluster Analysis and technique is used to cluster the farmers into different categories according

top the use of different things and facilities. It will inform the agriculture department that 2which farmer is using the standard fertilizers and other products to yield a better field for the country. The overall process includes. Farm Data showing the absence and presence of a range of farm characteristics

Matrix of similarities between eight farms

Dendogram formed to show the sub-groups of cluster of farms according to their differences

References

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