ANOVA

Student’s Name:

Institutional Affiliation:

ANOVA

ANOVA (Analysis of variance) is the collection of the statistical models plus their association projection procedures used for analysis of the dissimilarities among the group means in any sample. It was developed by an evolutionary biologist and statistician Ronald Fisher. In ANOVA setting, the variance observed in the specified variable is sectioned into parts attributable to the different variation sources (Zwanenburg *et al.,* 2011). ANOVA also provided the statistical test if the means populations of various groups are equal and hence generalizes the test to over two groups. It is useful for testing or comparing three or more group’s means for statistical significance. It is theoretically comparable to the two-sample multiple t-tests, however, is more conventional leading to less type I errors and hence suited for the broader range of the practical issues.

When one wants to use the ANOVA for analysis, the data should be checked first if it can be analyzed using the method. It is necessary to review the data because it is appropriate to use ANOVA if the data passes the six assumptions which are needed to make the result valid (Zwanenburg *et al.,* 2011). Practically, checking of the six assumptions utilizes more time of the analysis as it involves clicking some buttons in the SPSS Statistics while performing the analysis however it is not difficult.

The assumptions include:

• The dependent variable needs to be measured at the ration level

• Independent variable needs to compromise of two or more independent groups

* Independent observations are needed that means there is an absence of an association between observations in between groups and every group.
* Significant outlier should not be there.
* The dependent variable requires to be around distributed ordinarily for every group of the independent variable.
* The dependent variable requires to be almost normally dispersed for every set of the independent variable.
* Homogeneousness of variances should be present.

References

Zwanenburg, G., Hoefsloot, H. C. J., Westerhuis, J. A., Jansen, J. J., & Smilde, A. K. (2011). ANOVA-principal component analysis and ANOVA-simultaneous component analysis: A comparison.*Journal of Chemometrics, 25*(10), 561. Retrieved from https://search.proquest.com/docview/907080082?accountid=41759