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A Study on Importance of Microsoft Excel Data Analysis Statistical Tools in Research Works

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ABSTRACT

In the current era statistical for highly developments new techniques and software's during the find out numerous applications in various expanded field for Agriculture, Industry, Business, Sociology, Share market value, Environmental, Commerce, Medical, Education, Planning, Sciences, Economics, Management, Behaviour, Banking & Financial Sectors etc. It is very useful for data analysis presentation, chart and analysis. The study examines how to add-ins data analysis to Microsoft Excel and analyze statistical tools in research works. Suggestion for tool analysis Descriptive Statistics are central measures to find mean, median, and mode. The arithmetic mean or average is calculated by adding all the values within the data set and then sorting them by the values. Analysis of variance (ANOVA) finds out the relations between two are more groups. Correlation is finding out the relations between two are more groups for positive or negative relationships. Covariance presents a constructive number if the variables are absolutely related. High covariance essentially indicates there is a strong relationship between the variables. At the same time low value means the lowest relationship. T-Test in essence allows the use of comparing average values between two group sets to determine and to find the null hypothesis to be eligible to or not. T-Test Paired is comparative for past and current value for best relationship or not. F-Test is significant to indicate the linear regression representation gives a better fit to the data than a test that contains no independent variables. R-squared value proves that the model fits the data. Z-test is greatest used for large sample sizes (n > 30) mostly utilized to find standard deviation. But this technically is to measure the mean a raw score and z-score find the reason is normal distribution curve. Regression methods consist of deciding a statistical relationship between measurements of two variables y axis and x axis. The value of variables to measurement of R Square value, f test and P value is considered that R-squared values less than 50% than 90% is highly very good measurements data and P value is > 0.05 is highly significant. The described guidelines for creating more awareness strategies and providing information to utilize Microsoft excel data access for the correct tool.

Keywords: Microsoft Excel, Data Analysis tools, ANOVA, Correlation, Covariance, Descriptive Statistics, T-Test, F-Test, Z-Test and Regression.

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INTRODUCTION

Statistics was considered just a science of Statecraft and was used to collect information concerning the major crimes, military strength trick, population, wealth, etc., for devising army forces and economic policy. But with the idea of Welfare State enchanting extraction roughly all above the world, the reach of Statistics has enlarged to social and financial phenomenon. In the olden days the scope of Statistics was mostly limited only; but nowadays the collection of the following data analysis is possible. In the current era statistical for highly developments new techniques and software's during the find out numerous applications in various expanded field for Agriculture, Industry, Business, Sociology, Share market value, Environmental, Biology, Botany, Commerce, Medicine, Education, Physics, Chemistry, Bio-Technology, Psychology, Zoology, Planning, Economics, Management, Behaviour, Insurance, Banking, Financial, Accountancy and Auditing etc. It is very useful for data analysis presentation, chart and analysis.

Microsoft Excel is a spreadsheet software that is one of the best tools because the data was wrongly input data the result is not generated for data analysis and making possibly the most useful analytic tool. First in excel sheet to add-ins analysis toolpak for the data analysis after the analysis of Analysis of variance (ANOVA), Correlation, Covariance, Descriptive Statistics, Exponential Smoothing, F-Test Two-Sample for Variances, Fourier analysis, Histogram, Regression, Moving Average, Random Number Generation (RNG), Rank and Percentile, Sampling, t-Test: Paired Two-Sample for Means, t-Test: Two-Sample Assuming Equal Variances, t-Test: Two-Sample Assuming Unequal Variances and z-Test: Two-Sample for Means.

Objectives of the Paper

1. To examine the how to add-ins data analysis to Microsoft Excel.
2. To analyze the importance of Microsoft Excel data analysis statistical tools in research works.

LITERATURE REVIEW

Alan C. Elliott, Linda S. Hynan, Joan S. Reisch, & Janet P. Smith. (2006). observed that the significant section necessary to good research is the precise and capable collection and research of data for analysis. The mainstream medical researchers have little or no preparation in data organization, frequently causing not only unnecessary time spent attacking data but also a possibility that the data set contains compilation or recording errors. The achievement of easy guiding principles based on techniques used by qualified data administration teams will keep researchers time and money and effect in a data set enhanced appropriately to answer and investigate questions. Because Microsoft excels frequently used by researchers to collect data, exact techniques that can be implemented in Excel are offered.

Kousar Jaha Begum., & Azeez Ahmed. (2015). said that statistical analysis depends on the aim of the learning. The purpose of a survey is to attain information concerning the condition of the population study. The initial Statistical assignment is consequently is to do a descriptive analysis of variables. The necessary to nearby results get for each type of variable of qualitative and dichotomous variables is frequencies and percentages and quantitative variables is a means and deviations. After this analysis is access the association between variables and analytical based on multiple regression models. They have analysis of software packages like SPSS, EPInfo, STATA, Minitab, Open Epi, Graph pad and the distributions of age, gender, race and any measures of socio-economic. These distributions will help to

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update your analysis in terms of likely age modification, weighting and other analytical tools accessible to attend to issues of bias and non representative samples.

Nchimunya Chaamwe., & Langstone Shumba. (2016). observed that the integration of ICTs in the education and learning curriculum is the visible goal for plans to progress education in schools. In this paper proposes the use of an extensively eagerly accessible tool to realize the same addition that other dedicated tools would reach. Separately from by means of convenient formulas pupils can create their own formula to influence numbers. The use of micro software excels in the education and learning of statistics in minor schools.

Subrata Naskar., & Palash Das. (2018). said that learning research is a methodical request of scientific technique for solving instructive problems, concerning students and teachers as glowing. It attempts to systematize data quantitatively and qualitatively to reach your destination at statistical inferences. At the present a there is incessantly rising insisting of the researchers for the statistical data analysis, they require for statistical methods to be practical in statistical data dispensation. In the request of statistical tests in educational research to make clear basic statistical tests used in instructive research & data analysis the unusual statistical software used in enlightening research & data analysis. It was also done that various statistical software became a more significant part of data analysis. Thus in enlightening do research statistics and central role for creation research effectively.

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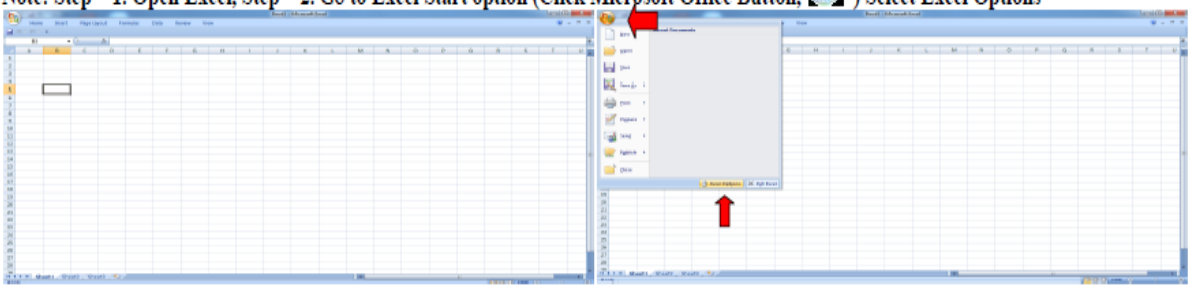
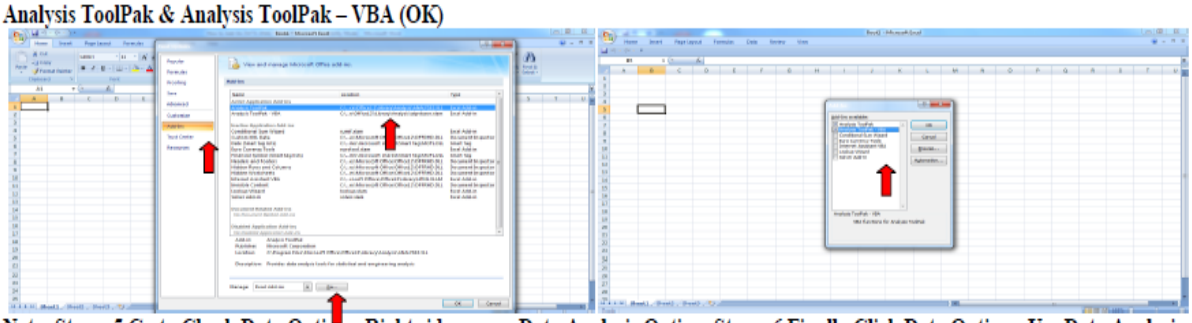
Figure 1. How to add-ins Data Analysis to MS Excel

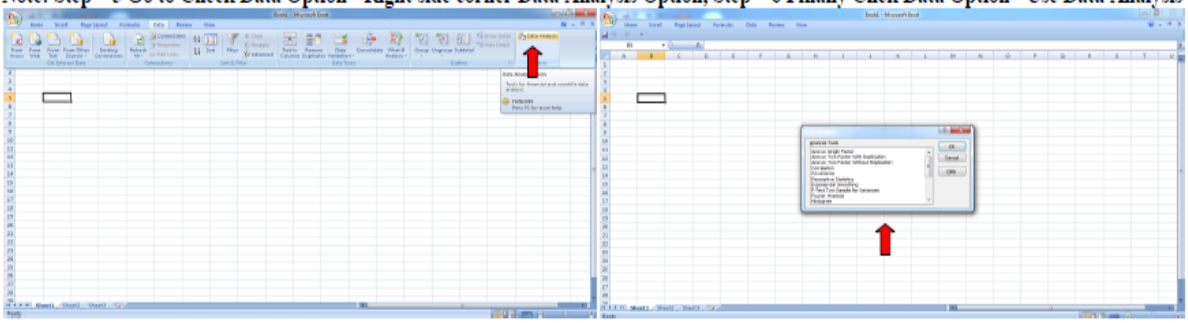
Note: Step – 1. Open Excel, Step – 2. Go to Excel Start option (Click Microsoft Office Button,) Select Excel Options



Note: Step – 3 Click Add-Ins Option, Click Analysis Tool Pak & Manage Excel Add-ins (Click) Go, Step – 4 Open Add-Ins available Click Analysis ToolPak & Analysis ToolPak – VBA (OK)



Note: Step – 5 Go to Check Data Option - Right side corner Data Analysis Option, Step – 6 Finally Click Data Option - Use Data Analysis



Data Analysis MS Excel

In the types of statistical tools for ANOVA, Correlation, Covariance, Descriptive Statistics, Exponential Smoothing, F-Test Two-Sample for Variances, Fourier analysis, Histogram, Regression, Moving Average, RNG, Rank and Percentile, Sampling, t-Test: Paired Two-Sample for Means, t-Test: Two-Sample Assuming Equal Variances, t-Test: Two-Sample Assuming Unequal Variances and z-Test: Two-Sample for Means.

1) Analysis of variance (ANOVA)

ANOVA is a statistical method that compares means in two or more groups to significant differences between each other. The types of ANOVA analysis is Dependent Variable Analysis, One or more categorical analysis for independent variable and Identification of Null hypothesis. ANOVA Analysis is a three categories i) ANOVA single factor ii) ANOVA: Two-Factor with Replication and iii) ANOVA: Two-Factor without Replication. ANOVA single factor can be used to find out the null hypothesis between two or more groups. ANOVA: Two-Factor with Replication for calculation of performance for two groups and find out the significant values. ANOVA: Two-

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Factor without Replication is a comparison of the variance of the sample size is different and the total numbers of samples are mostly even.

2) Correlation

Correlation analysis is a method of statistical estimation for the strength of a relationship between two or more numerically measured and continuous variables. The rule of correlation coefficients considers that the strong correlation is +1 is highly positive correlation than -1 is highly negative correlation. There is another way of correlation coefficients is Pearson's correlation to find out the level of significance on p-value. Usually, a significance level indicated as α or alpha of 0.05; and α of 0.05 indicates the possibility of ultimate that a correlation survives.

3) Covariance

Covariance is a measure of the directional relationship between the two random variables. A positive refers to the range from the covariance. Covariance specifies the way of the linear association between variables.

4) Descriptive Statistics

Descriptive statistics are utilized to describe or summarize the individuality of a sample or data analysis results are measures of central tendency for mean, median, mode, kurtosis, skewness, range, variance, ranking, standard deviation or frequency, first, second and third quartile. This type of statistics can help us identify with the collective property of the essentials of a data sample. Mean is the average to determine the central value. Standard error measures the accuracy value of the sample distribution and deviation to find out the mean. Median is classified as the middle value. Mode value is shown most frequently for the data. Standard deviation is an analysis for a group whose standard deviation value is closer to average and increases standard deviation more than expected value. Sample variance is the degree of extended data for larger the variance in the relation to the mean value. Kurtosis is a measure ranging from 0 to 3 that is a normal distribution; value of 0 is negative kurtosis and above 3 is a positive kurtosis. Skewness is a measure less than -1 or greater than 1, that is a normal distribution; -1 value is left tail skewed is negative and greater than 1 is right tail is positive skewed. Range (minimum to maximum) is the data measure for low to high value. Sum is the total value for the data. Count is the number of total digits for the data.

5) Exponential Smoothing

Exponential smoothing is measured for a single group then analyzed by the univariate data set to make forecasting systematic trend for chart and Standard error of methods.

6) F-Test Two-Sample for Variances

That tool tests for the null hypothesis that two samples coming from two independent groups cover the equal variance.

7) Fourier analysis

The Fourier analysis tool solves problems in linear systems and finds forecasting and time series data that can be utilized in the Fast Fourier Transform (FFT) method to change data. This tool also supports for data converse renovations the converse of changed data returns the creative data.

8) Histogram

A histogram is a graphical representation that organizes a group of data points using specified ranges and a bar chart in bell shape is good data.

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9) Regression

Regression is a statistical method utilized linear regression X & Y for and multiple regression is dependent variable and independent variable. Regression statistics results for multiple R value, R square, adjusted R square, Standard error, Observation, ANOVA, F test and P – value.

10) Moving Average

Moving Average in these tools measures find that forecast and trend based on the average value of the variable analysis for over a particular digit of earlier stages.

11) Random Number Generation (RNG)

A random number generator (RNG) is a statistical construct, either data computational or as a computer hardware device is considered to make a random position of statistics that should not present any evident models in their forms or creation consequential through an algorithm.

12) Rank and Percentile

A percentile rank score of 60% or above is measured greater than average. The National Percentile Rank Score (NPRS) usually follows the Raw Score (RS) as you appear diagonally on the page of success test information from left to right.

13) Sampling

Sampling is a tool that measures population and becomes a target group to become a calculation of samples. That is used to specify data to collect and identify the problems samples to take the order of measure to system, behaviors, process, issue, or problem and attitudes. Sampling is the process of questionnaire or schedule of individuals from within statistical samples to approximate characteristics identified.

14) T-Test: Paired Two-Sample for Means

T-Test Paired Two Sample for Means tool measures for previous and current data and to ascertain the find null hypothesis results can be accepted or rejected for finding statistical significance data that have occurred random wise.

15) T-Test: Two-Sample Assuming Equal Variances

T-Test Two-Sample assuming Equal Variances test measures the mean, variance, observations, pooled variance and hypothesized mean difference then find out the critical one tail and two tail analyzed.

16) T-Test: Two-Sample Assuming Unequal Variances

T-Test Two-Sample assuming Equal Variances test measures the mean, variance, observations, pooled variance and hypothesized mean difference then find out the critical one tail and two tail analyzed but the value is not same.

17) Z-Test: Two-Sample for Means

Z-Test: Two- Sample for Means test measures the mean, known variance, observations, hypothesized and z value then find out the z critical one tail and two tails analyzed. To find out variances to test the null hypothesis for identified p value test based.

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METHODOLOGY

In this paper was secondary descriptive nature based on it. The data were collected from Microsoft Excel and other related publications. The literature was collected from authorized national and international published journals and related websites.

DATA ANALYSIS AND RESULTS

Results

This section consists of presentation of all the results in tables, graphs, etc. and the description of those numbers and figures.

Robustness Test

This section consists of one or more test to check the robustness of the results, to ensure that the results are robust and meaningful.

Analysis

This section consists of critical discussion on the findings, explanation of the novelty of the results of the study, justifications of the results, and discussions how do the results differ or equate to other related studies.

CONCLUSION AND RECOMMENDATIONS

Conclusion

In this study concluded that the different categories of Ms Excel can be used as a tool to educate subjects like statistics tools to correct data. Researchers have decided that the utilization of tools like excel in the release of topics like statistics improves the sympathy of such topics by learners. Ms Excel has a benefit in excess of extra tools in that it is generally accessible and moderately easy to access. The described guidelines for creating more awareness strategies and providing information to utilize Microsoft excel data access for the correct tool. The guidelines explain the following will make it easy to create options, more accurate and more appropriate data. Descriptive statistical analysis summary is a best measure for the basic analysis.

Suggestions For Select Tools in Research Work

- Descriptive Statistics are central measures to find mean, median, and mode which are utilized at approximately all levels of mathematics and statistics. The arithmetic mean or average is calculated by adding all the values within the data set and then sorting them by the values.
- Analysis of variance (ANOVA) is to find out the relations between two groups.
- Correlation is to find out the relations between two are more groups for positive or negative relationships.
- Covariance presents a constructive number if the variables are absolutely related. High covariance essentially indicates there is a strong relationship between the variables. At the same time low value means the lowest relationship.
- T-Test in essence allows us to compare average values between two group sets to determine and to find the null hypothesis to be eligible to or not.
- T-Test Paired is comparative for past and current value for best relationship or not.

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- F-Test is significant to indicate the linear regression representation gives a better fit to the data than a test that contains no independent variables. R-squared value proves that the model fits the data.
- Z-test is greatest used for large sample sizes (n > 30) mostly utilized to find standard deviation. But this technically is to measure the mean a raw score and z-score find the reason is normal distribution curve.
- Regression methods consist of deciding a statistical relationship between measurements of two variables y axis and x axis. The value of variables to measurement of R Square value, f test and P value is considered that R-squared values less than 50% than 90% is highly very good measurements data and P value is > 0.05 is highly significant.

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