

Applications of Statistics Tools in Business

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Abstract -- The effective functioning of the any business, Statistics is indispensable. Different department and authorities require various facts and figures on different matters. They use various statistical tools and techniques to frame and execute the policies and guidelines in order to perform smoothly. Traditionally, people used statistics to collect data pertaining to manpower, crimes, wealth, income, etc. for the formation of suitable military and fiscal policies. Over the years, with the change in the nature of functions of the State from maintaining law and order to promoting human welfare, development of technology the scope of the application of statistics has changed nowadays. Today, the business and technology developers collect statistics through their agencies on multiple aspects like population, agriculture, defense, national income, oceanography, natural resources, space research, old technology and their impact etc. Further, nearly all publics and private business and technology developers, rely heavily on statistics for their smooth functioning. Also, the availability of statistical information enables to frame new policies and guidelines to improve the overall working of the system.

Indexed Terms: Statistics, Technology, Tools

I. INTRODUCTION

Meaning

Statistics is a mathematical science and technique which is used to collect the data, organize the data and analyze the data in a meaning full way by using various statistical tools and reaching to a conclusion or decision which helps for future development of business or technology.

Origin

The word statistics is derived from the Latin word "status" or the Italian word "statista," and meaning of these words is "political state" or "government." Shakespeare used the word statist in his drama Hamlet (1602). In the past, statistics was used by rulers. The

application of statistics was very limited and specific, but business persons, kingdom and technology developers needed information about land, agriculture, commerce, populations, technologies of their states or country to assess their military potential, advancement of technology, their wealth, taxation and other aspects of government.

Relationship between Statistics with Business

The statistics relate with the business in various aspects, from the stage of deciding what business has to start, when, where, how much investment, what technology, who are the customer, how long you can run your business with same phenomena etc. for modern business statistics is a core science and methodology, which show the path to run a smooth business.

Relationship between Statistics with Technology

The rapid developments of business data the acquisition and storage of data is too difficult to collect and analyze manually. So the statistical technology has led to the collection of large amounts of data, so finding the useful information in databases become the most important things that the companies look at it. Therefore, the new branches in statistics are came up.

Applications Tools and Techniques of Statistics

Various statistical software systems are available currently. The commonly used software systems are to use for data analysis like Statistical Package for the Social Sciences (SPSS – manufactured and maintaining by IBM corporation), Statistical Analysis System ((SAS – developed by SAS Institute North Carolina, United States of America), R (designed by Ross Ihaka and Robert Gentleman from R core team), Minitab (developed by Minitab Inc), Stata (developed by StataCorp) and the MS Excel (developed by Microsoft).

- StatPages.net – provides online calculations and analysis of various data sets.
- G-Power – provides a downloadable power analysis program that runs under DOS to do data analysis
- Power analysis for ANOVA designs an interactive site that calculates power or sample size needed to attain a given power for one effect in a factorial ANOVA design where u can calculate the analysis of variance.
- SPSS makes a program called overall systematized tool for analysis and interpretation of the data and putting directly that analysis in report.

Case Processing Summary

	N
Total Cases	10
Excluded Cases ^a	0
Forecasted Cases	0
Newly Created Cases	0

a. Cases with a missing value in any variable are excluded from the analysis.

Variable Processing Summary

		Variables
		Dependent
		VAR00002
Number of Positive Values		10
Number of Zeros		0
Number of Negative Values		0
Number of Missing Values	User-Missing	0
	System-Missing	0

Sample Data analysis through Statistical tool

No of customers in online shopping	Profit share
18	54.00
29	72.00
23	61.00
25	64.00
35	74.00
69	86.00
56	80.00
62	82.00
20	58.00
43	78.00

Model Summary and Parameter Estimates

Dependent Variable: VAR00002

Equation	Model Summary					Parameter Estimates	
	R Square	F	df1	df2	Sig.	Constant	b1
Linear	.222	2.284	1	8	.169	61.467	1.715

This data can be calculated by using SPSS tool, to know the correlation between number of customer and profit share of online marketing.

II. ANALYSIS AND INTERPRETATION THROUGH SPSS TOOL

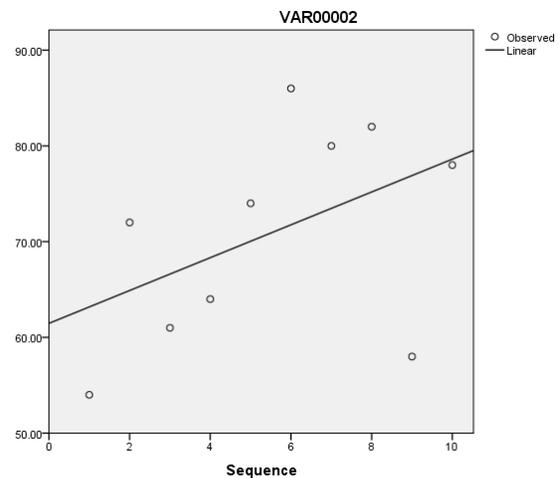
```
EXECUTE.
* Curve Estimation.
TSET NEWVAR=NONE.
CURVEFIT
/VARIABLES=VAR00002
/CONSTANT
/MODEL=LINEAR
/PLOT FIT
/ID=VAR00001.
```

Curve Fit

[DataSet0]

Model Description

Model Name		MOD_1
Dependent Variable	1	VAR00002
Equation	1	Linear
Independent Variable		Case sequence
Constant		Included
Variable Whose Values Label Observations in Plots		VAR00001



Statistical Techniques	AREA
Spss	Online Marketing

III. PROS AND CONS OF STATISTICS

Cons:

Pros

1. Less time consuming: Because it is secondary data it is usually cheap and is less time consuming because someone else has compiled it.
2. Patterns and correlations are clear and visible: Statistical data is data that has already been analyzed and therefore the patterns and correlations have already been done and are clear and visible.
3. Taken from large samples so the generalizability is high: Statistical data is data that has been gathered from very large data samples. This means that the generalization is higher.
4. Can be used and re-used to check different variables: Statistical data is data that can be used and reused. It does not require one time usage as the same data can be used to make a different decision.
5. Can be imitated: Statistical data can be imitated to check changes which increases reliability and representativeness of the data.
6. Fast: Statistical data is data that can be analyzed relatively quickly and with much ease as compared to other forms of data.
7. Standardization: Statistical information is collected in a standardized way which gives the data meaning.
8. Straight forward: Statistical data is usually straightforward to analyze. It is data that has already been synthesized and therefore very little analysis is required.
9. Reliable: They are often required and respected by decision-makers within the institution and beyond eg funders, government. This makes them reliable and accurate.
10. Quality data: They support qualitative data obtained from questionnaires, interviews etc with 'hard facts'.
11. Benchmarking: Statistical data is useful for benchmarking purposes. They can be used to make comparisons and set new standards and targets within the organization or in a project.

1. Unverified: The researcher cannot check validity and can't find a mechanism for a causation theory only draw patterns and correlations from the data. This means the researcher has limited options to verify the validity and authenticity of the data.
2. Can be misinterpreted: Statistical data is often secondary data which means that it can be easily be misinterpreted. This leaves the researcher vulnerable to distortion of information without the ability to make confirmations.
3. It can be manipulated: Statistical data is open to abuse it can be manipulated and phrased to show the point the researcher wants to show. This makes the data wanting in objectivity and more subjective in nature.
4. Because this is often secondary data it is hard to access and check: Statistical data is mostly secondary data that can only be accessed. It may be quite difficult to check and verify the data because the primary source of the data is unavailable.
5. It is not appropriate: Statistical data is not an appropriate method to understand issues in great depth and identify ways to solve problems highlighted. This is because the data is collected from primary sources by an independent researcher.
6. Not ideal for evaluation: They are not suitable to evaluate user opinions, needs or satisfaction with services because they are subjective. The researcher cannot rely on statistics to measure the happiness or satisfaction of the client.
7. It is time consuming: It may be time-consuming to arrange methods of data collection eg contacting vendors, liaising with IT departments. This is because the data collection methods used in the primary research depend on the subjective perspective of the researcher.
8. Performance management: Statistical data cannot be used to measure performance management in an organization because it is outdated.

9. Decision making: While statistical data can be used to make future inferences, it cannot be relied upon to make decisions in an organizational setting.
10. Comparison: Statistical data cannot be used to make comparisons with current data or future data because the methods of data collection and data analysis may not be known.

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IV. FINDINGS

Previously the data can be collected and analyzed manually but at present the data can be analyzed through statistical tool like spss etc. here statistics of number of customer and profit share of a particular company in online marketing can be analyze through spss. Here we found that the varies in number of customers for online marketing the varies in profit share of company through online marketing.

V. SUGGESTIONS

Every business has to adopt statistical tool to organize and analyze the data. The statistical tool gives accurate answers where manual calculation can't.

VI. CONCLUSIONS

In any business the business persona should use statistical tools for his business to manage and run the business in successful manner, through statistical tools the business person should know the fact and figures clearly and take a proper decision for the future development of business.

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