JETIR.ORG ISSN: 2349-5162 | ESTD Year : 2014 | Monthly Issue
JOURNAL OF EMERGING TECHNOLOGIES AND INNOVATIVE RESEARCH (JETIR)
An International Scholarly Open Access, Peer-reviewed, Refereed Journal

Analytical Methods for Qualitative Data in Social Research.

Prof. Dr. Punam Y. Choudhary
Assistant Professor,
Indirabai Meghe Mahila Mahavidyalya,
Amravati.

Introduction:

Social Research carries specific significance in decision making for the society or population understudy. The findings based on data collected are indicators of social behavior. The data so obtained needs to be properly analyzed using appropriate method . Statistical tests are applicable to quantitative data only. However, the data evolved in social Research are not always of numeric nature. Qualitative studies are also involved in social research.

The popularly used scoring method for qualitative data is Likert's Five point scale method in which five alternatives are provided and these alternatives are scored 1,2,3,4 and 5 as such the numeric or quantitative data, However its qualitative characteristic due to scores assigned.

Statistical tests are broadly classified as Parametric tests and Non -Parametric tests. Parametric tests are based on the assumption of normality, while non-parametric tests do not have any strict assumption. These tests are known as distribution free test, where in no strict assumption on normality made. If the distribution from which a sample is drawn is badly skewed or non-normal, for small sample parametric test will not yield meaningful results.

Statisticians have devised alternative procedures which can be used in hypothesis testing for non-normal data are called as non-parametric tests or distribution free tests. The technique of non parametric analysis was formulated in 1900. Karl Pearson and others have laid down the different test procedures for qualitative data analysis in social research.

Introduction of Information and Communication Technology in Social Research made easy data collection and tabulation with the help of google form . Multiple choice questions are set and respondent are asked to select appropriate choice. The data so obtained are automatically scored and Excel worksheet for scores are prepared such data are also called as ranked data which is distribution free, hence the non-parametric tests are applicable in data analysis. Large number of non-parametric tests are available. However researchers have discussed following Five tests which are oftenly used in qualitative data generated through social studies.

Commonly used non-parametric tests :

1. The sign test.
2. Ranksum test.
3. One sample runs test.
4. H-test.
5. Spearman's Rank correlation coefficient.

The advantages of the these tests are:

1. They do not require any assumption about population understudy.
2. Simple and easy to understand and apply.
3. Results are indicative , no further clarification required.
4. Any type small or large sample data dealing possible.

1. The sign test

The sign test is the simple non-parametric test. This test is based on the direction (signs pluses or minuses).Total number of "+" signs and "-" signs are counted. S=number of less sign + or -.

$$K = \frac{(n-1)}{2} - (0.98)\sqrt{n}$$

S > K
Ho is accepted.
The sample means are equal.

2. **Ranksum Test**.

This test is also known as Mann-Whitney test (μ- test). Two samples of size n_1 and n_2 are ranked together for ranks. If same observations appears average of two adjoining ranks are given. After assigning ranks, sums for two samples are obtained separately.

$$\mu 1 = n1.n2 + \frac{n1(n1+1)}{2} - R1$$
$$\mu 2 = n1.n2 + \frac{n2(n2+1)}{2} - R2$$

Where R1 and R2 are Ranksum. For sample 1 and sample 2.
μ is smallest and μ_1 and μ_2.

$$Z_{cal} = \frac{\mu - \frac{n1-n2}{2}}{\sqrt{n1.n2(n1+n2)/12}}$$

Compare Z_{cal} with table value of Z at 5% level of significance = 1.96 and at 1% level of significance 2.58.

If $Z_{cal} \leq Z$ table
Ho is accepted .
Sample means are equal.
If $Z_{cal} > Z$ table
Hi is accepted .
Sample means are not equal.

3. Runs Test:

This test was found appropriate when we have little control over the selection of data.
If we predict the garment sale in store during a given month. Sales data for a given month recorded.
This Run is a succession of identical numbers n_1 are the no. of men purchasing garments and n_2 no. of women.

$$\mu = \frac{2n1.n2}{n1+n2} + 1$$

μ = mean.
R= no. of runs measured.
σ= S.E. of runs measured.

$$Z = \frac{r-\mu}{S.E.}$$

Z table at 5%= 1.96.
1%= 2.58.

If $Z_{cal} \leq Z_{table}$
Ho is accepted
Means are equal.
If $Z_{cal} > Z_{table}$
Hi is accepted .
Sample means are not equal.

4. H-Test

$$\frac{12}{n(n+1)}\left(\frac{R1^2}{n1} + \frac{R2^2}{n2}\right) - 3(n+1)$$

Where, R1 and R2 are Ranksums .
For Sample 1 and Sample 2.

$$n = (n1 + n2)$$

n1= no. of observations in sample 1.
n2= no. of observations in sample 2.

5. Spearmans Rank Correlation.

$$r = 1 - \frac{\sigma \in D^2}{n^2 - n}$$

Where,
N= no. of ranks.
D= Difference of ranks in two samples.

The significancy of r indicates correlation between two set of data is significant.