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POLICE ADMINiSTRATION discuss/complete 4

Police administration Introduction Statistical analyses vary depending on the results expected to be achieved. Different statistical methods perform different functions based on the needs. The range, mean, median and mode are the most commonly used methods in various statistical analyses. In this paper, I have discussed the various statistical methods that have been used in most statistical applications. Besides, I have also discussed the demerits of using such methods for various applications. The illustrations given here have been accompanied wit short and relevant examples for easy understanding.

The range

The range is one of the statistical methods that have been widely applied in statistical analyses to measure the extent of dispersion in a set of data. Statistical range is defined, in simple terms, the difference between the highest value and the lowest value in a set of statistical data. The basic formula for calculating range is R = HV – LV, whereby R is the range, HV is the highest value and LV is the lowest value in the data set. For instance, the statistical range in a set of data provided below is computed as follows: 113, 112, 125, 197, 190, 105, 100, 176, 250, and 790.

R = HV – LV

= 790 – 100

= 690

Statistical range has been associated with various advantages and disadvantages as illustrated by (Swinscow & Campbell, 2003). To begin with, the range can be misleading, just as the arithmetic mean, especially when

the dataset provided is composed of extremely high or low values than the mean value (Swinscow & Campbell, 2003). In such cases, the range is likely to give a false impression of the true trends of dispersion in the data set. To illustrate this fact, we will use the example in the data set below: 8, 11, 5, 9, 7, 6, and 3616. The range in the data above is 3616 – 5 = 3611. From the data above, the single value of 3616 makes the range very large. Most of the values in the data however centres around 10 and so the range computed above does no show the exact trend of dispersion.

Different statistical methods can be used for different kinds of analyses depending on the statistical needs. In this section, I have discussed the statistical methods that can be used in different applications. The appropriate measures of dispersion for the different data sets provided on HOME, ARREST, TENURE and SIBS have been discussed in details in the following section. Based on the data provided, the most appropriate measure of dispersion that can be applied in analyzing the variables on HOME is the ‘ mode.’ This is because the data provided here seeks to find out the most preferred type of housing among the sampled population. Mode shows the most common unit among the population hence the most appropriate method for analysis. Besides, mode can be used in nominal data sets as in the case of the data on HOME described above.

The data on TENURE, on the other hand, can be analyzed using the mean since we are concerned with finding out the average number of months one has spent living in a particular place of residence. The mean gives us just exactly this average hence the most suitable method for the analysis. The mode can also be appropriate in finding out the number of months that the majority of the population sampled has lived in their places of residence.

Besides, the two methods are appropriate for use in analyzing ordinal data sets like the one on TENURE hence most applicable for analysis. Data on SIBS is ordinal in nature hence can be analyzed using the mean, as well as the mode. The mean can be applied in finding out the average number of siblings one has while the mode is applicable in finding out the most common number of siblings each person in the sample has. The two methods would, therefore, be most appropriate in analyzing the data set provided. Same methods, mean and mode are most applicable in analyzing data on ARREST as the data is ordinal.

Conclusion

To conclude, different statistical methods are best suited for different types of analysis depending on the intended objective. The choice of a method determines the outcome of the analysis and the ease in interpretation. Wrong choices as Swinscow & Campbell, (2003) record leads to wrong analyses and consequently wrong outcomes. One is, therefore, required to be extra keen while choosing the methods of analysis to be adopted for use.

Reference

Swinscow, T. D., & Campbell, M. J. (2003). Statistics at square one (10th ed.). New Delhi, India: Viva Books Private Limited.