# Editorial

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The International Year of Statistics, 2013 is coming to an end and here we have this special issue on statistics. Etymologically 'Statistics' came from 'state'. Originally it meant collecting and tabulating data about population and geographic regions for administrative reasons. We still use statistics for this purpose, but it is also used in a variety of other contexts. Theoretical aspects of statistics involves a thorough understanding of probability theory and sometimes other mathematical fields. Its application involves several things such as (i) design of experiments, i.e., prior planning of the statistical experiment, (ii) collection of data through sampling or otherwise, (iii) ensuring that the data collected is reliable, (iv) making necessary computations with the data, (v) drawing conclusions, or statistical inference, (vii) hypothesis testing, (viii) forecasting, (ix) statistical quality control, (x) displaying the conclusions in a transparent way, etc.

In natural sciences one is expected to provide experimental evidence for one's claims. This typically involves doing the desired experiment and taking measurements. But inevitably there are errors in conducting experiments as well as in measurements. Hence, a statistical analysis of the data is always required. Similarly in economics and other social sciences, claims have to be backed by solid data and once again a statistical analysis is called for. For these reasons a basic knowledge of statistics is required for a researcher. It is part of what some call as 'research methodology'.

Lay people come across statistics mainly through public media. Unfortunately 84.27% of the statistics is made on the spot, like the percentage mentioned here. Some press reports make outlandish claims based on scanty data. Usually all they observe is some correlation between two sets of data. One should understand that nothing much can be inferred unless one finds the
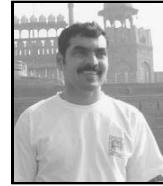
2013 is the International Year of Statistics.

reason for correlation. Our cover page beautifully illustrates one such instance of spurious correlation.

Often people misunderstand statistics and also sometimes misuse it, either knowingly or unknowingly. For example, when you see claims that crime rate has come down in a certain area, it usually just means that the number of incidents *officially reported* in the local police station has come down. Here it should be made clear it is the official crime rate that one is talking about. Even a simple concept such as 'average' if not used properly can be misleading. One of my favourite examples is the following: *Most statisticians have more than average number of hands.* This is actually a correct statement as the average number of hands for human beings is strictly less than 2, with some physically handicapped people having no hands or just one hand. Of course, there is nothing special about statisticians here. For a population if we say that the average income is sufficient for decent living, it may not mean much because most people could be very poor with a small number of others being filthy rich. These are all simple cases where one may misinterpret statistics. In certain situations the error in statistical reasoning can be much more subtle. Currently we are in a digital world, where there is a big explosion of data. Analyzing them to extract useful information has become a big business. This means that there is an increasing demand for statisticians statistics as a career!

In this issue we have several statistics-related articles. T J Rao, going back to the original use of statistics, describes the role of National Statistical Commission in the official statistical system of India. The article 'First Digit 1' by Tanya Kaushal Srivastava describes a very interesting statistical phenomenon which can be noted in numbers we come across in our daily life. V S Borkar describes stochastic approximation as a tool in statistical computing. The article by Soumen Dey and Mohan Delampady tells us how to handle situations where a large number of statistical hypothesis testing has to be carried out simultaneously. We also have an article by Sheela K Ramasesha on the options for renewable resources for energy. You can see how some statistical data is being conveyed through various graphs. The Classic item is a good old article of D Cox on statistical inference. Lastly in 'Face to Face' we have a short interview with C R Rao, one of the most eminent statisticians of all times. He is over ninety and is still very active!

I thank Mohan Delampady without whose help this issue would not have been possible.