USE OF COMPUTERS IN DATA ANALYSIS

Dr. P. K. Korde

Head, Department of Business Administration, Hutatma Rajgurunagar College,
Rajgurunagar, Pune India
Email: sonawanemukanda@gmail.com

ABSTRACT

Do you know that IT has been recognized as a potential enabler of business as companies have been invariably growing their business by looking at new markets and products? India has been best positioned to offer IT services and IT solutions. Most of the MNCs are outsourcing their software requirement to retain their competitive edge and our country has been recognized as an emerging superpower in IT. Finally, we should learn about IT because of the many employment opportunities in this field.

Keywords: Design, Data Analysis, School Projects

INTRODUCTION

Data analysis as a component of the research process which needs to be considered throughout every stage of the design. We have noted how early design decisions can shape the types of data which will be collected and therefore influence the analysis which will be possible. It is important to recognise this and make sure that the types of data collected are suited to responding to our research questions. In this sense, it is useful to work backwards through our research design. Once research questions have been formulated, it should be apparent what types of data will be required in order to meet the objectives of the research. This will then form the basis of the choice of methods, selection of sample, and design of research instrument.

We have considered the different formats in which both quantitative and qualitative data can present themselves, and how to manage the data. Issues of data collection need to take into consideration data analysis, since data is often organised in the field, whether this be through the writing of fieldnotes or recording of survey responses.

Statistical analysis techniques can be complicated. We have chosen to concentrate on introducing just some of the techniques which researchers use in order to explore the data and seek out associations. Owing to the widespread use of computers in analysing quantitative data nowadays, the emphasis has shifted from an understanding of how to calculate statistical tests to understanding where it is appropriate to use one test or another and how to interpret the results. There are many texts which offer an in-depth exploration of the techniques.

OBJECTIVE

An important aspect of IT is that it can be applied anywhere. The impact of IT has not only changed the working at offices but also the lifestyle of people at home.
Statistical significance

When dealing with data which has been collected from a sample, rather than the whole population, we are presented with a quandary. How can we be sure that the conclusions we are drawing on the basis of our analysis apply not only to the sample, but also to the population as a whole? There will always be the possibility, even with carefully selected samples, that the sample is not representative, and that observed patterns have simply occurred in our sample by chance. Unfortunately this cannot be entirely overcome, but we can work out the likelihood of this happening by testing for statistical significance.

Statistical significance works on the basis of establishing a null hypothesis. This is a hypothesis which states there is no relationship existing between the two variables. In trying to establish association between variables, we are seeking to reject this hypothesis (thereby establishing that there is, in fact, a relationship). However, if our findings are not an accurate reflection of the population as a whole, then there is the possibility that we may reject the null hypothesis when we should be accepting it. The probability of doing this forms the basis of the level of statistical significance.

While the wealth of tools available to the quantitative researcher can be bewildering, it does at least offer comfort to the analyst in the form of strict guidance and established practice. Qualitative data analysis does not benefit from such strict guidelines, but models and approaches such as grounded theory can be used to gain assurance and confidence in our treatment of the data. Without the luxury of having a specific test which applies to identifiable types of data, it is important to remain focused on the research questions and to select data for analysis which are best able to answer these questions.

The debate over combining methods is one which can perhaps be best tackled by focusing on data analysis, since it is from analysis that the benefits can best be gained. Using analysis of data to inform the research design, or to validate our research, are both useful ways of strengthening our research in the face of criticism. The seemingly eternal question of epistemological concerns will remain, but it is worth considering combining methods for the fresh challenges it presents and for the possible practical advantages to be had.

Preparing data for analysis

The collection of quantitative data will usually require the recording of measures or indicators on a research instrument (a questionnaire or schedule) and then inputting the data into a computer analysis program such as SPSS. Quite often nowadays, particularly in large research organisations, these steps are combined through a process of computer-assisted personal interviewing (CAPI), whereby the traditional paper questionnaire is replaced by a laptop computer. Interviewers are then able to input responses directly into a software program which presents an electronic version of the questionnaire. Similarly, in experimental research, computers are often available on site, and so data can be entered directly into analysis software. When carrying out a small-scale project, however, we most likely will have to rely on the traditional method of collecting data on a paper research instrument. This inevitably leads to a large collection of paperwork, all of which will have to be managed while data is transferred to a computer. It is important that each questionnaire or schedule can be identified, so giving each case a unique number will enable the data on the computer to be traced back to the corresponding research instrument in the event that checks need to be made, or data is lost or damaged.
LIMITATIONS

Limitations on the types of analysis available to us are imposed by earlier stages in the research process. The way in which concepts are operationalised, the ensuing variables which have been defined, and the format the indicators take will all affect our analysis. Linked to all of this is the process of coding. By and large, quantitative data is pre-coded, so different responses are listed against their respective codes on a questionnaire. For some examples of closed questions which have been pre-coded, see the section on questionnaire design in Chapter 6. The ways in which these codes relate to the categories of the variables will determine what analysis is appropriate. It is therefore important to recognise the difference between what are known as levels of measurement.

CONCLUSION

Analysis is an element of research which is often perceived as the most problematic stage. This can often lead to a reluctance to begin analysis and time spent collecting more and more data instead, which simply exacerbates the problem. Getting started with data analysis is perhaps the most difficult part of the research process, but by seeing the analysis stage as part of the whole process, and not just something which happens at the end of your research, is a good way of overcoming this barrier. It is, after all, only through the analysis of our data that we begin to see our research questions finally illuminated.

REFERENCES