



PSPPD II – a partnership between the Presidency,
The Republic of South Africa and the European Union



An Introduction to Quantitative Data Analysis for Researchers in Education

Stellenbosch University

8 - 12 June 2015

Overview

The aim of the “*Introduction to Quantitative Data Analysis for Researchers in Education*” course is to provide educational researchers with basic quantitative skills needed to interact with large-scale datasets in education. Although South Africa participates in a number of cross-national studies of educational achievement, few South African researchers possess the requisite quantitative skills needed to use these datasets (or others) in meaningful ways. This is problematic given that it is now widely acknowledged, both locally and internationally, that there is a serious need for education research that combines both qualitative and quantitative insights. It is for this reason that the course is primarily aimed at faculty and graduate students in education departments at South African universities. Other education researchers (from NGOs, think-tanks, policy forums) are also welcome to apply¹.

The course is intended to provide participants with a conceptual understanding of basic statistical procedures for quantitatively exploring and understanding data using a range of real-world data sets. The course introduces participants to measures of *central tendency* (mean, median, mode), *non-central tendency* (percentiles, quartiles, deciles etc.), and *distribution* (variance, standard deviation, inter-quartile range). Participants will learn how to calculate these statistics in STATA and also how to create graphs and tables that describe education data. The aim is always to equip participants with the skills needed to create their own graphs, tables and statistics in STATA and to interpret them accurately for their own purposes. All lectures and practicals will use South African education data, including SACMEQ, PIRLS, TIMSS, ANA and matric, as well as some administrative data (EMIS).

The course will be from 9am to 4:30pm each day from 8-12 June 2015 and will be held at Stellenbosch University. Each day there will be two interactive lectures and one extended practical session in STATA. No prior knowledge of STATA is necessary and participants need not have their own STATA license. The course will be held at a computer lab at Stellenbosch University and all computers will have STATA installed on them. The lecturers for the course will be Nic Spaull and Servaas van der Berg assisted by other ReSEP researchers.

¹ We will be running a separate, but similar, course for education policy makers later in the year. Any interested individuals should please contact us at carinebrunsdon@sun.ac.za.



Aims

The aim of the course is to take participants that have a basic understanding about statistics (means, frequencies, percentages etc.) and to help them to answer the following questions:

- What is a standard deviation and how does one use and interpret it?
- What is a standard error and how does it relate to a confidence interval?
- What is a median? a mode? a percentile?
- How does one decide how large a sample needs to be?
- What is the difference between correlation and causation?
- When can we say that one thing *causes* something else?
- How do you create and interpret graphs in STATA? Including histograms, line charts, stacked bar charts, scatterplots, boxplots and kernel densities?

By the end of the course participants should be familiar enough with STATA and the basic concepts of descriptive statistics that they can generate and interpret graphs and tables in STATA by themselves. They should also have a basic understanding of the major educational datasets in South Africa (PIRLS, TIMSS, SACMEQ) and be able to answer their own questions using these datasets.

Costs

All costs for the course (including the course-fee, course-materials, transport to Stellenbosch and accommodation in Stellenbosch) will be covered by the PSPPD programme.

Applications

To apply to attend the course, please send an email to carinebrunsdon@sun.ac.za with your CV and a *brief* motivation as to why you think the course will be beneficial to you and your research (maximum 1-page). Please make the subject line of your email “PSPPD Data Analysis course” and indicate if you will be requiring transport to, and accommodation in, Stellenbosch and which city you will be coming from. There are limited spaces available (approximately 30) and preference will be given to senior faculty and PhD students, although masters students are also encouraged to apply.

Accessibility

If there are any applicants with special learning needs please indicate this on your application and we will do our best to accommodate your needs. We encourage you to liaise with us and the Office for Students with Special Learning Needs (OSSN) at Stellenbosch University.

Deadline for applications: 30th April 2015.