

# Addressing the quantitative skill shortage in the social sciences

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*Increasingly social science graduates in New Zealand, especially those in the subject areas of sociology and political studies, are graduating without essential skills in the area of quantitative data analysis. In an attempt to address these issues, the research team at the Centre of Methods and Policy Application in the Social Sciences (COMPASS) at the University of Auckland have developed two initiatives. The first of these, the New Zealand Social Statistics Network ([www.nzssn.org.nz](http://www.nzssn.org.nz)) organises short courses in research methods training. The second, the New Zealand Social Science Data Service ([www.nzssds.org.nz](http://www.nzssds.org.nz)), provides secondary data for analysis and teaching resources linked to quantitative research methods.*

## Introduction

Increasingly social science graduates in New Zealand, especially those in the subject areas of sociology and political studies, are graduating without essential skills in the area of quantitative data analysis. This lack of skills has a number of impacts, both personal to the students and more broadly to the social science sector in New Zealand. For the students, it limits their employment opportunities and their choices for ongoing study. For the social science sector, the implications are that there is a lack of researchers who are able to analyse the sometimes necessarily complex data with which they are faced and address important policy questions that require quantitative methods skills.

This article briefly describes the nature of the quantitative skills shortage in the social science sector in New Zealand and why finding solutions to this problem is important. It then describes two initiatives to address some of the issues in this area

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which have been developed by the COMPASS research team at the University of Auckland. Finally, it identifies a number of additional measures which, if adopted, would also assist in addressing the quantitative skill shortage.

## The quantitative skills shortage

Concern about the shortage of research capability, and in particular, the dearth of quantitative skills is not a recent phenomenon in New Zealand. In its 2001 report, the Social Science Reference Group noted that ‘policy agencies have reported to us a dearth of the evaluation and quantitative skills required for policy positions’ (Social Science Reference Group 2001, p. 24). Later in 2005, in a follow up report the Social Science Reference Group noted that ‘There are long run capability issues to be addressed across the wider social science community’ (Social Science Reference Group 2005, p. 33).

Disquiet with the shortage of such skills in the social science sector is not confined to New Zealand. In the UK, the Economic and Social Research Council (ESRC) recently launched an initiative to address the skills deficit in quantitative research methods across the social sciences, noting ‘there is a need to enhance quantitative skills across the full breadth of the ‘educational life course’, from building new capacity at the undergraduate level to refreshing the quantitative skills of mid-career academics that teach undergraduates and supervise PhD students (‘training the trainers’)’ (MacInnes 2009).

The lack of quantitative skills among social science students, particularly those in political studies and sociology, has two sources. Firstly, there are insufficient teachers trained in

quantitative methods to deliver such courses. Furthermore, when courses in quantitative methods are taught they are often delivered by staff on short-term contracts who do not necessarily have the training or resources required to deliver these courses. In addition, the development of the resources necessary for the proficient teaching of quantitative methods is expensive and time-consuming, making these courses less desirable to teach. These factors all combine to limit the number of skilled quantitative methods teachers available to teach in the social sciences, thus limiting the options available to students.

Secondly, students opt not to take courses offering skills in quantitative methods for a variety of reasons. Often students are not taught the utility of, nor are they exposed to, numbers in their undergraduate courses and hence do not attach value to learning such skills for employment and future study opportunities. In addition, students in an Arts Faculty may often express a 'fear' of numbers and avoid such courses. Furthermore, the existence of a 'quantitative versus qualitative' divide in these subjects, especially in sociology, means that the use of quantitative methods is often associated with a dogmatic empiricism which appears to deny the richness of social life, again reducing student interest.

These two sets of factors serve to limit both the number and range of quantitative methods courses available to students and to reduce the interest of students in taking such courses.

## Why is the lack of quantitative skills a problem?

The resulting lack of quantitative skills is a problem for a number of reasons. For the students, firstly, it denies them access to good jobs. Most students graduating in these disciplines do not work in the academic sector. Instead, many of them will work in the public sector or for nongovernmental organisations where there is fierce competition (especially in the current environment) for jobs. Those students with quantitative skills typically are given preference for many of these positions. Second, a lack of quantitative research skills limits students' choices when deciding to undertake postgraduate study. Many overseas universities require students to hold quantitative research skills, and the lack of these may mean that students are not able to take opportunities to study at these institutions.

For the social science sector, the lack of analysts with comprehensive quantitative research skills limits its ability to analyse a mountain of data that includes official statistics and to address important research and policy questions.

## The COMPASS response - our contribution to the solution

As a contribution to finding solutions to this issue of lack of quantitative skills, the research team at COMPASS,<sup>1</sup> led by Professor Peter Davis, have undertaken two initiatives which

<sup>1</sup> *The Centre of Methods and Policy Application in the Social Sciences (www.compass.auckland.ac.nz) is a research centre at the University of Auckland headed by Professor Peter Davis. COMPASS specialises primarily in health services and social science research. COMPASS has a staff of 1 professor, 3 research fellows, 4 statisticians, an administrator, and a research manager. It obtains its research funding from the Health Research Council, the Foundation for Research, Science and Technology, the Marsden Fund, and other sources*

will be discussed in the next sections of this paper. We do not profess to have all the answers to the issue of the skill shortage with regard to quantitative methods. Our intent at this point is to share our experiences and posit some ideas and potential future directions for discussion among the wider social science community. We are firmly of the belief that such solutions need to be part of a collective and, although located at the University of Auckland, we strongly believe in the collaborative model of sharing teaching and other resources, in order to ensure the best possible outcome for both students and the broader social science sector in New Zealand.

The first of the initiatives discussed is the New Zealand Social Statistics Network (NZSSN) and the second is the New Zealand Social Science Data Service (NZSSDS).

## The New Zealand Social Statistics Network

The New Zealand Social Statistics Network (NZSSN; [www.nzssn.org.nz](http://www.nzssn.org.nz)) was established in November 2004, with the aim of assisting in the development of social science research skills, with a particular but not exclusive focus on quantitative skills, in the academic, government and private research sectors.

The first research methods courses were run in Auckland in early 2005 and since then have been delivered in Wellington, hosted by the School of Government at Victoria University of Wellington. Courses in quantitative, qualitative and mixed methods are typically offered. In February 2010 the following mix of introductory, intermediate and advanced courses was run: Introduction to Statistics, Qualitative Research Techniques, Case Study Research, Introduction to Survey Design, Data Analysis in SPSS, Introduction to NVivo, Introduction to Program Evaluation, Research Synthesis for Policy and Practice, Introduction to Structural Equation Modelling Using Amos, and Advanced Analysis of Linked Health Data. The courses were attended by 125 people including postgraduate students, academics, public sector staff and other researchers.

Each year we seek to strengthen the range of courses offered and build on the previous year's foundations. In 2011 the additional planned courses include: Longitudinal Data Analysis, Fundamentals of Multiple Regression, and Advanced Structural Equation Models using Mplus.<sup>2</sup>

Along with hosting the annual research methods summer school, the NZSSN has also run occasional workshops on such topics as event history analysis, and social simulation (both microsimulation and agent-based).

## The New Zealand Social Science Data Service

The New Zealand Social Science Data Service (NZSSDS; [www.nzssds.org.nz](http://www.nzssds.org.nz)) was established with assistance from the Tertiary Education Commission (TEC) in 2007. The NZSSDS was established with a broad-based stakeholder group including; Statistics New Zealand (SNZ), Broadband-enabled Science and Technology Grid (BeSTGRID), Building Research Capability in the Social Sciences (BRCSS), Data Saving and Sharing Work-

<sup>2</sup> *For more information and/or to enrol, please visit: [www.nzssn.org.nz](http://www.nzssn.org.nz) or email: [courses@nzssn.org.nz](mailto:courses@nzssn.org.nz)*

ing Party, Social Policy Education and Research Committee (SPEaR, Ministry of Social Development), Massey University, and the University of Canterbury

Initially, the intent behind the data service was to provide a hosting service to ensure that high-quality, publicly funded, social science datasets containing information of relevance to New Zealand were retained and made available for re-use. However, the data service has been expanded over time and now performs three functions.

The first of these is preserving and making available research datasets and metadata. In this regard almost 50 datasets have been archived and made available for further analysis. These include the New Zealand Election Study (NZES) data (1990–2008), the International Social Survey Programme (ISSP) data for New Zealand (1991–2009), the World Internet Project for New Zealand (2007) and a number of health datasets (adverse events, oral health care, primary care, sexual health). These datasets are accessed by researchers in a number of countries and are also used as a teaching resource for a number of courses at the University of Auckland, namely postgraduate courses in Sociology and Statistics.

The second function of the data service is to make available to a broad audience a number of ‘Enhanced Publications’. These comprise publications ‘enriched’ with three types of information: research data (evidence of the research), extra materials (to illustrate or clarify), and post-publication data such as commentaries. Enhanced publications are useful as they promote the availability of reusable scientific data, allow verification of the outcomes of the research, and reduce the need to ‘re-invent the wheel’ and thus make better use of scarce resources. To date a small number of these advanced publications have been made available, and more will be added as resources permit.

The third function of the data service and the one that is of most interest for the purposes of this article is that of making available teaching data subsets and associated workbooks. These teaching resources have been made available, and more are under development, in order to assist with both the teaching and the learning of quantitative research methods. At present two teaching workbooks and their associated datasets are available on the data service. The first is based on the International Social Survey Programme data and changing family and gender roles. The second is based on data available from the New Zealand Election Study data to examining attitudes to politics. Additional teaching workbooks and associated datasets are under construction.

## Where to from here?

These modest contributions from the COMPASS team aside, there are a number of additional responses available which we believe have the potential to raise both the number of students graduating with sufficient quantitative skills and the quality of teaching of such courses.

Firstly, postgraduate students could be taught quantitative (and qualitative) research methods in a block course model at one or more universities around the country at the beginning of each academic year. Each participating university could provide some resources to lessen the cost, and such a means of teaching would also strengthen links among postgraduate students in different disciplines. Secondly, postgraduate students could be taught such skills across the Kiwi Advanced Research and Education Network (KAREN) in a hands-on workshop environment with expert help available. Again universities could pool scarce resources to provide such training, or jointly hire an acknowledged high-quality research methods teacher. Thirdly, teachers across the country could jointly work to produce an agreed curriculum for the teaching of research methods at stage 2, 3 and postgraduate level through the pooling of resources. Fourthly, an annual prize could be provided for the best masters’ and PhD thesis produced using quantitative methods in each discipline. Finally, students at both undergraduate and graduate level should be introduced to the utility of numbers by demonstrations of their value in non-research methods courses. For example, the ISSP data on changing family and gender roles could be used in more theoretical courses on gender.

## Conclusion

Postgraduate students in both sociology and political studies in New Zealand suffer from a dearth of quantitative research skills which limit both their employment choices and their options for further studies. This also reduces the capability of the social science sector to address important research and policy questions. This paper has outlined two initiatives under way to deal with the problem and has suggested additional ways in which this issue can be addressed. A collaborative approach across universities would ensure the best use of scarce resources and help to ensure the best outcomes for the future of quantitative research methods skill development in New Zealand.

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