David Walters

Statistical Consulting at Sociology.ca

I provide statistical consulting for researchers in the social sciences, education, business, biostatistics, epidemiology, as well as other health and medical sciences. Much of my consulting involves collaborating on research grants and providing statistical assistance in the preparation of refereed journal articles or professional reports. However, I also offer seminars on advanced statistical methods, as well as training seminars on various statistical software programs. These services are discussed in more detail below.

Statistical Consulting

Why should you consider a statistical consultant? With the recent proliferation of new statistical techniques and the widespread availability of data with complicated structures, it is ever more important that scientific inquiry is performed by a competent and knowledgeable researcher; someone who understands which statistical techniques are the most appropriate for certain types of analyses and who is aware of the latest advancements in the area. In fact, as modern developments in statistics have rapidly invaded policy research, many new issues and methodological concerns often escape new or inexperienced researchers. For example, statistical analyses involving complex data may require researchers to perform appropriate diagnostics, account for complex survey sampling designs, estimate robust or bootstrapped standard errors, simulate parameters, or impute missing data. In many instances, ignoring common issues that arise when working with complicated analyses may severely compromise the integrity of the research altogether. Thus, it is especially important for analyses to be conducted by a skillful researcher

I offer statistical consulting that is aimed at improving empirical research in scientific communities. My research adheres to necessary standards required for publication in leading journals in any field of study, in order to address the potential concerns of even the most meticulous of methodological reviewers. At the same time, where analyses involve an extremely high level of technical detail, I am able to present results in a meaningful way for very non-technical readers/audiences. Usually, this requires results to be accompanied by informative and easy-to-understand graphical displays. If desired, I also provide all of the programming code (syntax) used to generate the results, along with a detailed explanation and complete log of all analyses performed.

In addition to performing data analysis, reviewing and interpreting results, I prepare methods and results sections of academic journal articles, professional reports, and grant proposals. I can also create PowerPoint or PDF slides for conference presentations or workshops.

Training Workshops and Statistical Computing

While the necessity and appropriateness of using advanced statistical techniques depend on ones' research questions and the availability of data, more often than not advanced methods are required to evaluate complicated theories. In fact, the use of advanced techniques is quickly becoming the rule, rather than the exception, for publishing empirical research in leading refereed journals. My workshops equip participants with an understanding of how to correctly and effectively use some of the more common advanced statistical methods used in policy research. I offer workshops on the following topics:

- Ordinary Least Squares (OLS) regression analysis, including regression diagnostics
- Generalized linear models (i.e., regression with binary, multinomial, ordinal, and count outcomes)
- Structural equation modeling with latent variables (confirmatory factor analysis)
- Parametric and semi-parametric event history analyses (also referred to as survival analysis, Cox regression, duration analysis, and hazard modeling)
- Multilevel modeling (regression models with fixed and random components) for cross-sectional and panel data, involving either quantitative or categorical outcomes (also known as hierarchical and generalized hierarchical linear modeling)
- Latent growth modeling (covariance structure models for repeated observation data)
- Time series analysis (statistical analysis of data collected on one unit collected over a large number of time periods)
- Training sessions on popular commercial and non-commercial software packages including HLM, SAS, Splus/R, SPSS, Stata, Lisrel, and AMOS

These workshops are generally designed for researchers and graduate students interested in using the above techniques for a research project, journal article, thesis or dissertation. They are applied workshops that provide a detailed, yet non-mathematical, introduction and overview of the topic, including when, why, and how to use each technique, as well as the type(s) of data necessary for each method, the implications of using inappropriate techniques instead (i.e., ignoring correlated error terms), choosing and assessing an appropriate model, and how to skillfully interpret and report statistical output. Each participant will receive copies of my presentation slides, the computer syntax (code) that I use for my examples (participants can use the syntax to exchange the variables that I use with the variables that they will be using in their own research), and copies of the datasets used in the workshop. Examples used in my workshops are drawn from a variety of different fields of research, as is the reference material I provide.

I also offer advanced workshops that are designed for those who have already taken a number of courses on advanced regression topics, and are interested in gaining a better understanding of the statistical procedures and processes involved in estimation. These seminars may also involve creating statistical programs for linear and generalized linear models. Emphasis is placed primarily on how to calculate regression estimates

where closed form solutions are unavailable (e.g., maximum likelihood estimation). The workshops provide participants with a thorough understanding of statistical modeling and estimation at a level necessary to pass comprehensive (preliminary) exams in quantitative methods at leading research institutions. They are especially valuable for early academics considering a career as a social/research methodologist. As the emphasis of these workshops is on estimation rather than interpretation, participants are expected to have a general background in the following topics: logic of statistical inference, probability distributions, differential calculus, and regression in matrix.

For further information, please send all correspondence to:

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