



SPECIAL ISSUE: CALL FOR PAPERS

CASE-BASED APPROACHES TO THE ANALYSIS OF QUANTITATIVE DATA

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Within the social sciences generally, the conventional approach to the analysis of survey data remains variable-based, employing some member of the regression family. Regression methods address the effect of one or more supposedly “independent” variables on some outcome. Individual cases, the carriers of the variables, usually remain in the background, as do, often, underlying causal mechanisms and processes. It is variables that act, having their effects on a dependent outcome variable. In the typical multivariate study, the purpose is to report the net (and often average) effect of each independent variable. The underlying mathematics is matrix algebra and the typical model additive. Causal homogeneity, usually, is assumed across cases (an assumption whose realism was questioned by Ralph Turner as long ago as 1948).

Over the past 30 years, a number of authors have published important critiques - sometimes unjustly neglected - of the assumptions of this form of variable analysis. Abbott, Byrne, Freedman, Lieberman, Pawson and Ragin, amongst others, have contributed much to our understanding of its limitations. A key assumption of the default model is that “independent” variables do indeed act independently of one another. As Ragin (2006) argues, in this “net effects” approach,

... estimates of the effects of independent variables are based on the assumption that each variable, by itself, is capable of producing or influencing the level or probability of the outcome. While it is common to treat "causal" and "independent" as synonymous modifiers of the word "variable," the core meaning of "independent" is this notion of autonomous capacity. Specifically, each independent variable is assumed to be capable of influencing the level or probability of the outcome *regardless of the values or levels of other variables* (i.e., regardless of the varied contexts defined by these variables). (14-15)

Ragin has developed one approach, *Qualitative Comparative Analysis* (QCA), based in set theory, which allows us to move away from this assumption. QCA is designed to address conjunctural causation; it allows a researcher rigorously to model processes whose outcomes are the result of the combined effect of several factors. QCA addresses relations of causal sufficiency and necessity rather than linear additive causation. In the application of this holistic approach to large scale survey data the case, rather than disappearing from sight, is retained, existing as a configuration of conjoined factors (see, e.g. Ragin, 2006, Cooper, 2005). Other approaches such as cluster analysis, correspondence analysis and sequence analysis also offer fruitful ways forward (Byrne & Ragin, 2009).

Methodological Innovations Online will publish in May 2011 a special issue addressing the application of broadly case-based approaches, such as those mentioned above, to quantitative data. Submissions of methodological and substantive papers addressing this topic should be made to the editors, by email, by the 30th September 2010 (barry.cooper@dur.ac.uk & judith.glaesser@dur.ac.uk). Please also address any questions concerning the relevance of possible submissions to the guest editors. For MIO's rules concerning required format, length, etc. see <http://www.methodologicalinnovations.org/submissions.html>.

References

- Byrne, D. & Ragin, C.C. (2009) *The Sage Handbook of Case-Based Methods*.
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Ragin, C.C. (2006) The limitations of net effects thinking. In B. Rihoux and H. Grimm (Eds) *Innovative Comparative Methods for Political Analysis*, New York: Springer.
Turner, Ralph H. (1948): Statistical logic in social research. *Sociology and Social Research*, 32, 697-704.