Where there is no single Theory of Change: The uses of Decision Tree models

Description

Tweet

Rick Davies, November 2012. Unpublished paper. Available as pdf version available hereand a 4 page summary version

This paper begins by identifying situations where a theory-of-change led approach to evaluation can be difficult, if not impossible. It then introduces the idea of systematic rather than ad hoc data mining and the types of data mining approaches that exist. The rest of the paper then focuses on one data mining method known as Decision Trees, also known as Classification Trees. The merits of Decision Tree models are spelled out and then the processes of constructing Decision Trees are explained. These include the use of computerised algorithms and ethnographic methods, using expert inquiry and more participatory processes. The relationships of Decision Tree analyses to related methods are then explored, specifically Qualitative Comparative Analysis (QCA) and Network Analysis. The final section of the paper identifies potential applications of Decision Tree analyses, covering the elicitation of tacit and multiple Theories of Change, the analysis of project generated data and the meta-analysis of data from multiple evaluations. Readers are encouraged to explore these usages.

Included in the list of merits of Decision Tree models is the possibility of differentiating what are necessary and/or sufficient causal conditions and the extent to which a cause is a contributory cause (a la Mayne)

Comments on this paper are being sought. Please post them below or email Rick Davies at rick@mande.co.uk

Separate but related:

- Predictive Analytics: the Power to Predict Who Will Click, Buy, Lie, or Die, Eric Siegel, 2013. Looks very readable. Explains workings of Decision Trees in some detail
- Big Data for Development: Challenges & Opportunities May 2012 by UN Global Pulse

See also: An example application of Decision Tree (predictive) models (10th April 2013)

Postscript 2013 03 20: Probably the best book on Decision Tree algorithms is:

Rokach, Lior, and Oded Z. Maimon. *Data Mining with Decision Trees: Theory and Applications*. World Scientific, 2008. A pdf copy is available

Category

1. Unpublished paper

Tags

1. causality
2. contribution analysis

3. data mining
4. Decision Tree
5. mayne
6. rick davies
7. Theory of Change

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