

Supplementary materials

Weighting of the data

The Scottish Wellbeing Study uses quota sampling based on age, sex and working status. The data were then weighted to ensure that the achieved sample on the quota variables was representative of the population in the sample frame using random iterative method (rim) weighting. Rim weighting allows weighting of different sample characteristics simultaneously, by using an algorithm that slightly distorts the variables. This means the weighted data more closely resembles the target population across a number of characteristics. Overall, as the quotas were almost always met (30-34 year olds, full-time students and full-time workers were slightly under-represented in the unweighted profile compared to the target profile) the effect of the weights was small, with the weights ranging from 0.81 to 1.30. All analyses were conducted with the weights on, with SPSS applying the weights to the analyses.

Expectation Maximisation

The Expectation Maximisation (EM) algorithm was applied to replace missing items within the data set. The algorithm is a method of finding the *maximum-likelihood* estimates for the parameters of a statistical model when there are missing data points. EM is an iterative method that approximates the the *likelihood function* (an inference that draws conclusions from the data through proportion or frequency). EM selects random values for each missing data point, and then uses those to estimate a second set of data; the new values are then used to create a better estimate for the first set, with the process continuing until the algorithm converges on a fixed point. This is conducted in SPSS and the method has been shown to be suitable for this type of missing data (Tsikriktsis, 2005).

Reference

Tsikriktsis, N., 2005. A review of techniques for treating missing data in OM survey research. *Journal of Operations Management* 24, 53-62.