

Statistical modelling, extremes and stochastic processes

Modeling psychosocial risks in workers of a Portuguese service company using different estimators for a reflective SEM

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Nowadays many companies regularly monitor their workers for the psychosocial risks they are exposed to in the workplace, as well as its impact on their health and well-being. There are some valid and reliable international questionnaires used for this purpose, such as the well-known COPSOQ where the observed/manifest variables are qualitative and measured in an ordinal scale. Some of these variables operationalize latent variables (i.e. not directly observable), such as stress and burnout syndrome. To investigate the relationships between manifest and latent variables, as well as between the latter ones, Structural equation modeling (SEM) can be considered [1]-[5]. This family of statistical techniques requires that the manifest variables be quantitative (measured on interval or ratio scales). However, when the ordinal scale is well presented (symmetric and with equidistant categories), those variables can be considered as approximate to an interval-level measurement and it is a common situation, in the scientific literature, to use them in SEM [2, 3, 4]. Thus, a theoretical reflective SEM was proposed and a model was estimated using the consistent Partial Least Squares (PLSc) estimator with a dataset obtained in a survey [3]. This model was also

estimated using maximum likelihood estimator (ML), the robust ML (MLM) and the weighted least square mean and variance adjusted (WLSMV) used for SEM with categorical variables [6]. Although different estimators and software algorithms were used (from Smart-PLS, AMOS IBM SPSS and an R package), the statistical results obtained show strong similarities (in terms of the values of the path coefficients and the coefficients of determination). The variables in the estimated model make sense in the light of psychosocial theories, where for example the stress can lead to burnout syndrome.

References

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