

## **Tests of structural equation models do not work: What to do?**

Willem Saris  
ESADE, Universitat Ramon Llull

### **Abstract**

Assessing the correctness of a structural equation model is essential to avoid drawing the wrong conclusions from empirical research. In the past the CHI2 test was recommended for assessing the correctness of the model but this test has been criticized because of its sensitivity to the sample size. As a reaction, an abundance of fit indices has been developed. The result of these developments is that SEM packages are producing a large list of fit measures nowadays. One would think that this progression has led to a clear understanding of evaluating models with respect to model misspecifications. However, the opposite appears to be the case judging from the discussions on SEMNET and from discussions in the literature, e.g. the special issue on SEM of the *Journal of Personality and Individual Differences* (2006). In this lecture we question the validity of the pragmatic approach of model evaluation. As an alternative, we suggest concentrating on the detection of misspecifications in such models. Using the concept of model misspecification put forward by Hu and Bentler (1998), we argue against the use of goodness of fit indexes, and the “intervals of close fit” associated with them for evaluating structural equation models. The argument against the use of fit indices is that they do not provide an adequate indication of the “size” of the model’s misspecification. That is, they vary dramatically with the values of incidental parameters that are unrelated with the “size” of the misspecification in the model. This is illustrated using simple but fundamental models. As an alternative method of model evaluation, we suggest using the Expected Parameter Change (EPC) in combination with the Modification Index (MI) and the power of the test for the detection of misspecifications.