A small sample correction for factor score regression

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Factor score regression (FSR) is widely used as a convenient alternative to traditional structural equation modeling (SEM) for assessing structural relations between latent variables. But when latent variables are simply replaced by factor scores, biases in the structural parameter estimates often have to be corrected, due to the measurement error in the factor scores. The method of Croon (MOC) is a well known bias correcting technique. However, its standard implementation can render poor quality estimates in small samples. A small sample correction (SSC) has been developed by integrating two different modifications to the standard MOC. We conducted a simulation study to compare the empirical performance of (i) standard SEM, (ii) the standard MOC, (iii) naive FSR, and (iv) the MOC with the proposed SSC. In addition, we assessed the robustness of the performance of the SSC in various models with a different number of predictors and indicators. The results showed that the MOC with the proposed SSC yielded smaller mean squared errors than SEM and the standard MOC in small samples and performed similarly to naive FSR. However, naive FSR yielded more biased estimates than the proposed MOC with SSC, by failing to account for measurement error in the factor scores.